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ABSTRACT

Models used for evaluating teacher education programs are described, particularly the learner referencing educational evaluation model. This model involves ten stages: (1) acquisition of possible teacher training program standards; (2) verification of those standards; (3) generation of specific learner objectives; (4) processing of learner referenced data to determine specific objectives; (5) external validation of university standards by classroom applicability; (6) comparison of teacher training program standards with learner performance measures; (7) generation of strategies for eliminating discrepancies between training program standards and learner performance; (8) consideration of adjustment strategies for the training program; (9) incorporation of these adjustments; and (10) determination of the effectiveness of these adjustments. The limitations of this model, and its initial implementation are described. Graduate-level student teachers from the University of Northern Colorado developed individualized education programs for their learning disabled and speech handicapped students. Data were collected regarding the attainment of these behavioral objectives. Discrepancies between the standards set by the teacher education curriculum and the actual classroom performance were studied by the university as part of the effort to improve its programs. The student data and some of the student teachers' and cooperating teachers' comments are included. (GDC)

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Preface

During 1974 the suggestion was made to the School of Special Education and Rehabilitation, University of Northern Colorado (UNC) to attempt an evaluation of its programs in terms of the population being served - namely, the students in public school special education programs served by the graduates of the UNC teacher education programs. During 1974-75 a pilot study, funded by UNC, was made to determine if child behavior change data could be collected from UNC graduates employed in public schools and clinics in the Northern Colorado area.[1] This monograph deals with the conceptual outgrowth of the 1974-75 pilot study and the efforts resulting from the academic period from September 1974 through March of 1977. An application for federal assistance was initiated to further pursue the notion of child referencing evaluation of teacher preparation programs.

The United States Office of Education, Bureau of Education for the Handicapped funded a one year grant for development of a methodological approach for child referenced evaluation of special education teacher training programs (OEG-0[illegible]7-40-2759). The School of Special Education and Rehabilitation provided in-kind support and facilities for

---

Wright, William S. and Walden, Judy; co-investigators.

this effort and, more importantly, the UNC Special Education staff provided cooperation, genuine interest and a willingness to participate in the evaluation process.

This monograph does not ask or answer all questions concerning learner referencing educational evaluation. It is a report of a methodological approach for evaluation of teacher education programs in terms of children being served by teacher candidates. The model and associated methods represent a beginning and are not a polished product void of shortcomings. This approach should give the reader an insight into the thinking of the project staff.

We wish to acknowledge the outstanding cooperation and assistance of the faculty of the School of Special Education and Rehabilitation. Thanks also to John Gruenloh and Al Stramiello for invaluable conceptual assistance, data collection; and end of year reports; thanks to Bruce Haverkos for his thoughts on the advantages of this method; and thanks to Nancy Gruenloh whose command of the English language, editorial skills and strong work ethic greatly assisted project completion.

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Forward

The format for this end of year report will be a monograph style with attachments and appendicies. This integrated presentation will attend to a rationale for learner referencing educational evaluation, the six goals for the 1976-1977 academic year, a methodological approach, end of year reports for the training programs involved, advantages, limitations and potential modifications of this methodological design.

The six goals for the 1976-1977 academic year were: (1) design a learner-referenced evaluation model that contains both competency-based orientation and the discrepancy evaluation process, (2) collect learner-referenced data from subjects taught by trainees-in-process from each subcomponent, (3) field test data collection procedures in public schools in the fall quarter 1976, (4) implement data collection procedures with learning disabilities and speech pathology practicum students, winter and spring quarters 1977, (5) collect data from as many sources as possible to facilitate evaluation of program subcomponents, and (6) compile and disseminate information to interested agencies

This monograph attends to the methodological approach for learner referencing educational evaluation with the appendicies presenting initial results of data analysis for the learning disabilities and speech/language departments.

This appears to be the most logical approach since the major outline of the problem was to determine if a system could be designed to gather and analyze learner referenced data.

OEG No. 007-40-2759

The work reported herein (Learner Referencing Educational Evaluation: A Model) was performed pursuant to a grant with the Office of Education, U. S. Department of Health, Education and Welfare. Those undertaking such projects under government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent Office of Education position or policy.

U. S. Department of
Health, Education and Welfare
Office of Education
Bureau of Education for the Handicapped

Overview

Teacher preparation programs use both internal and external evaluation techniques with the major emphasis on internal validation based upon a priori conceptualizations. This is exemplified by competency based and performance based teacher education programs. The emphasis on validation and evaluation of the training program's mission is based upon student performance of an a priori set of objectives. For example the training program may be evaluated in terms of student's successful performance of various university generated criterion for specified courses.

Evaluation of training programs by using external validation techniques has been underrated; that is, obtaining information from sources such as public school teachers and administrators to verify the legitimacy of program goals and objectives. Also, limited emphasis has been placed upon evaluating the trainees of a program in terms of their ability to effect or maintain behavior patterns with children. Such procedures would provide the training institution additional information to either legitimatize or make improvements in the training program.

A need exists for evaluating teacher training programs using both internal and external validation techniques. This would provide university decision makers a greater variety of information to increase the probability of making effective decisions for improving and validating the mission of the training program.

Introduction

The need for evaluation of teacher preparation programs has produced an increased emphasis in evaluation models and techniques in recent years. The main concern seems to be gathering objective data about teachers and preparation programs for use in making program decisions for validating and revising university training programs. Dyer (1973) detailed four types of educational accountability: fiscal, material, actions, and results. He questioned what type of educated person would result, if supplied financial, material, and procedural support. In the past educators have focused mainly upon the process of education as opposed to the product of education.

One evaluation concept receiving much attention in the literature was the use of learner outcome data to evaluate the training program and teacher performance. The objective is to determine if the graduate of a teacher preparation program can effect behavior change in the student he teaches. Lessinger (1973) spoke to this concern, "When a student is able to demonstrate in concrete terms what he has or has not learned, education will be in a better position to judge where or why a program succeeds or fails and make the necessary changes to achieve success."

Judging the performance of educators by the actions of the learner is not a new concept. In 1897 Joseph Rice (McNeil, 1971) was charged to evaluate the results of his school's spelling program. His final report to the superintendent was received with indignation since Rice had measured the results of teaching spelling by the ability of the students to spell. Leonard P. Ayers (McNeil, 1971), at the 1912 meeting of an association of school superintendents, stated that Rice's work would prove to be the benchmark of change in educational evaluation. Schools would now be able to assess teaching effectiveness by measuring the results of methods and materials. "He felt that the questions 'How much?', 'How many?', and 'With what results?' were going to replace the usual hit-and-miss educational policies of the time" (Zongolowicz, 1976).

Methodologies

While programs and teachers have been evaluated by many differing techniques, the models considered for review herein will be those of process evaluation, product evaluation and process-product evaluation. These three categories cover a wide variety of evaluation methods and can be most readily found in the current educational accountability and evaluation literature.

Process Evaluation

Typically the evaluation of teacher education programs and teachers has concerned itself with the process variables. A typical process evaluation reviews procedures to be accomplished by the teacher, methods to be used in the instructional process, recording teacher behaviors, or analyzing the teaching act. Competency based teacher education (CBTE) programs strive to provide the teacher candidate with skills purportedly related to effective teaching. Specific teacher skills and behaviors are identified and must be mastered during the training program before the student can advance to the next instructional set. Accomplishment of these objectives is thought to produce a more effective teacher. Evaluation of this program is usually a process evaluation of preparing teachers, i.e., have the candidates mastered the processes of teaching? Burke (1972) believed CBTE programs can clarify specific teaching processes to yield the researcher some measures to statistically test effectiveness of teachers in assisting children to learn.

These techniques typically rely upon a priori notions to identify necessary skills for a "good" teacher to possess. McNeil and Popham (1973) stated,

> An illustration of a common weakness in research investigation using process criteria appears in the work of Sprentholl, Whiteley, and Mosher (1966). In this study a relationship was detected between teachers' responses on psychological tests of cognitive flexibility and classroom behavior classified as cognitively feasible. Then because cognitive flexibility was assumed to be related to teaching proficiency, it was concluded that effective teaching and

cognitive flexibility are related (p. 220).

Berliner (1976) believed many techniques and methods purported to produce effective teachers are irrelevant to the classroom. He stated,

> From the learner's perspective the rate of reinforcement may be irrelevant. The teacher is either "nice" or "not nice" to students. I believe that some variables thought to be quite important by educational theorists are in fact unimportant to, unperceived or unperceivable by students. Students exposed to variables they can not perceive or to variables they believe to be unimportant, may be unaffected by such variables (p. 11).

Educational evaluators purport differing views on the importance of the teaching process. Competency based teacher education programs concentrate their efforts heavily in evaluating the teaching process. However, not all authorities believe this is the essential component for evaluation.

Product Evaluation

A second category of evaluation of teacher preparation programs concerns itself with the measurement of pupil achievement, growth, or outcomes. Those who advocate this type of product evaluation have concluded that process criteria are not sufficient to generate data required to predict teacher competence. This position represents the utilization of pupil data to assess teacher competence within a teacher education setting (Weber, 1974).

Popham and McNeil (1973) stated, "The single most important deficiency in research on teaching effectiveness is the failure to use outcome measures as a criterion . . ." for teacher effectiveness. They believed teacher education tends to rely upon the measures of a person's background, personality, education, or knowledge of instructional processes. The consideration of pupil outcomes as an effective measure of preparation programs and teacher effectiveness is an additional source of data for program managers and administrators. They proceeded to state:

> A focus on pupils reveals far more about the effectiveness of teachers than does direct study of teachers themselves. Discovery of the effective teacher through observation is not unlike the practice of physical scientists who determine the presence of an agent by measuring objects quite apart from that agent (p. 218).

McDonald (1972) also attended to this concern; "There is almost universal agreement that the ultimate criterion for evaluation of a teacher is the effect of his teaching behavior on the performance of his students." However, he reported many difficulties are associated with relating teaching behavior to pupil behavior. He believed evaluators of teachers and preparation programs have not applied the empirical aspects of the scientific method to education.

Moving toward competency based teacher education (CBTE) has produced new methods of assessing teaching competence. Specific competencies and outcomes characterize CBTE and the teacher candidate must demonstrate a specified level of proficiency. This procedure focused upon the process of teaching, but not necessarily upon the outcome of that process - student change. Richey and Cook (1975) stated, "In order to measure the continuing effect of a program one should do two things: (1) Observe the graduate in a teaching stituation, and (2) Measure the effects of the graduate's teaching on pupil behavior."

Singh (1974) discussed evaluation of a personnel preparation program for nursery school, kindergarten and primary grade teachers. He mentioned several types of evaluation models and concluded " . . . the best single index for the assessment of the effectiveness of any teacher preparation program is the amount of growth or change in the children it serves."

Cooper (1974) advocated use of pupil data. "Pupil outcome data . . . can be used in a formative sense to help the teacher improve instructional processes. Pupil outcome data can also be used in a summative sense to help supervisors make decisions about trainees regarding recommendations for certification."

Much has been written concerning the use of pupil outcomes for evaluating teachers and preparation programs. Weber (1974) stated that while problems exist in collecting and analyzing pupil data they can be used in ways that are cost effective. He believed use of pupil data has proved its value in providing predictive information and is worth the additional resources required in collection.

This position is not, however, universally accepted. Medley and Krathwohl (1974) reported the conclusions of a National Conference on Competency Assessment, Research and Evaluation held at the University of Houston in 1974. A group consensus indicated " . . . that the teacher should be held accountable for competence rather than outcomes." As an analogy the medical model was cited: If a physician used the best methods and technology available to him and the patient died, then he was not held accountable. When the practitioner's competence is called into question, his defence is based upon knowledge of and ability to apply the best known methods, and not outcomes (Medley & Krathwohl, 1974).

While many advocate the evaluation of teachers and teacher education programs using pupil outcome data, few implement practical applications of this strategy. Some authorities believe it is not practical or cost effective to collect this type of data while others believe it is desirable to evaluate programs in this manner. The state of product evaluation is basically one of theoretical concerns with both proponents and opponents. It appears more research must be accomplished prior to a clearer understanding of the value of product evaluation in education.

Process-Product Evaluation

A third evaluation model uses process and product. This model considers both the process of teaching and the student outcomes. The theoretical concern is identification of teacher skills which produce pupil gains or outcomes. While this rationale appears logical; it is laden with conflicting viewpoints and procedural difficulties.

Flanders and Simon (1969) in their review of education research defined this type of evaluation.

> Teacher effectiveness is an area of research which is concerned with relationships between the characteristics of teachers, teaching acts, and their effects on the educational outcomes of classroom teaching (p. 1423).

This review of literature indicated increasing research in this area. The studies, described in the process-product area, identified teaching behaviors and measured those by pupil achievement or attitudes. Flanders and Simon noted the increase of research providing some support for particular relationships between process and product. For example, they pointed to the studies of teachers' use of pupil ideas and comments in teacher instruction. Morrison (Flanders & Simon, 1969) found a significant relationship between the use of pupil ideas by the teacher and positive-attitude scores as well as achievement score gains in language, social study skills, arithmetic computation and problem solving. This seemed to indicate a relationship between teaching process and student outcomes.

Other studies do not support this relationship. In a study involving a high school physics class, it was noted that there was no significant increase in achievement when pupil ideas were used by the teacher for instructional purposes. Flanders and Simon (1969), however, noted that the procedures for this study did not provide for a sufficient amount of variation between the control and experimental groups and they believed it was this factor which contaminated the results of the study.

This review of literature was encouraging as it indicated a trend toward research on specific teacher behaviors and specific outcomes. However many problems are associated with this type of evaluation. McNeil and Popham outlined three main concerns: (1) differences between educators as to what constitutes necessary teacher characteristics and skills, (2) differences in desired pupil outcomes, and (3) determining which teacher behaviors produce significant pupil outcomes. While these concerns are valid and must receive the attention of those educators involved with this type of evaluation, such concerns may be minimized by operationalizing product-process constructs in terms of observable behavior responses.

In summation, evaluation of teachers and teacher training programs in the last decade has produced several methods focusing on varying aspects of the educational setting. Process evaluation includes the measurement of teaching procedures, behaviors and methods as a means for judging effectiveness. Product evaluation encompasses the end product of the educational process, the behavior change in the learner. Process-product evaluation incorporates aspects of both pupil outcomes and teaching process. Each of these strategies has its advocates and opponents, but most agree on a need for more objective evaluation methods of teachers and teacher preparation programs.

These issues will probably consume years of research to adequately develop educational evaluation. Weber (1974) deals with the questions concerning the assessment of teacher education programs. "First, teacher education programs . . . are faced with very complex measurement problems. It is highly unlikely that solutions to all these problems will be forthcoming in the near future. In the meantime, programs are faced daily with the making of operational decisions which . . . should be based on information that is objective, reliable, and valid."

Application

Weber (1974) stated that many assessment models used in teacher education today are based upon the model provided by Mitzel (1960). He considers a description of three types of evaluation used to study teacher effectiveness: (1) presage variables including background, personality traits, knowledge, etc., (2) process variables such as teacher-student interaction; and (3) product variables such as student change. Many other writers have expanded this model giving various labels to the same criteria. Regardless of the labels assigned to the criteria it seems most authors agree ". . . since the role of the teacher is to bring about desirable learner outcomes, it follows that teacher competency is best determined by measuring the growth of pupils taught by the teacher" (Weber, 1974).

The major intent of this monograph is to present a systematic method for the use of learner referenced data in the evaluation and revision of a teacher preparation program. Serious limitations remain in the use of pupil outcomes for evaluative purposes. Section Two deals with many of these limitations; however, learner referenced data are considered as one source of information not to be ignored simply because it may be difficult to collect.

Several models of learner referenced evaluation will be briefly presented. The benefits of using learner performance or outcomes for evaluative purposes appear great; yet there is little information on practical methods for collecting this data.

Courtnage, Brady, Suroski and Schmid (1973) employed a system at the University of Northern Iowa for using child referenced data to evaluate teacher candidates in special education. In one segment the candidates were evaluated during their student teaching experiences by their ability to produce observable gains in pupils they served. The University personnel viewed the practicum situations as a series of experiences with handicapped children where the candidates' effectiveness was measured by behavioral changes.

The teacher candidates were required to demonstrate their ability to effect behavior change prior to their program advancement.

> The model and systematic training program allows the application of theories which facilitate the efficient ordering of environmental events expediting the learning process. However, if a particular theory of methodology is incorporated into teaching practice, it must be held accountable in terms of predictable and observable changes in the behavior of children being taught by trainees (Courtnage et al., 1973, p. 8).

The above statement indicated how learner performance may be used in formation of program change and improvement. New methods and theories of teaching must be substantiated via change in the performance of the children being taught by the program trainees.

Cooper (1974) reported on the certification procedures at the Oregon College of Education, Elementary Teacher Education Program. This program uses pupil outcome data for both formative and summative evaluation purposes. "Pupil outcome data . . . can be used in a formative sense to help the teacher improve instructional processes. Pupil outcome data can also be used in a summative sense to help supervisors make decisions about trainees regarding recommendations for certification" (Cooper, 1974).

The Oregon College Elementary Teacher Education Program used a form of the contract plan developed by McNeil and Popham (1973). They described the contract plan as follows:

> The essence of this technique involves the development of a carefully selected set of objectives for the pupil. Supervisors and teachers agree in advance what they will accept as evidence that the teacher has been successful in changing the skills, competencies or attitutdes of his students. An agreement is drawn up before the teacher instructs and is designed to counter the prevailing practice of trying to make an ex post facto judgment about the desirability of ends. Subsequently, evidence is collected to see how well the learners achieved the stated objectives as well as whether unintended outcomes have emerged. . . . Contracts are prepared for varying periods of time - a single day's lesson, a semester plan, a year of instruction. This contract system demands that data by which to judge more clearly what the instruction has done to those who have been subjected to it be supplied, and, when coupled with instructional analyses,

> ought to enable a teacher to revise and better in some respect the procedures employed in previous work (McNeil & Popham, 1973, p. 234).

This program required trainees to be responsible for pupil learning at a specified period during their student teaching. During the student teaching experience the trainee must plan, instruct, produce desired outcomes and accomplish related professional activities. The competencies of the training program are specified in advance of the student teaching. Cooper (1974) listed these standards reported by Schalock and Ferguson.

> Standard 1. At least sixty percent of the pupils taught will achieve the learning outcomes expected from the unit of instruction prepared especially for the two to five week teaching experience, and at least an additional twenty percent will show evidence of appreciable progress in relation to those outcomes. This standard must be demonstrated for each subject matter area included in the unit and for each class of learning outcome intended from the unit, for example, knowledge, skill, attitude.
>
> Standard 2. Two of the three children worked with individually during the course of the two to five week teaching experience shall demonstrate evidence of gain in overcoming the reading

problem(s) identified at the onset of the two to five week teaching experience.

Standard 3. Some progress in the use of selected problem solving and social interaction skills can be shown for the class as a whole (Schalock & Ferguson, 74, Appendix B).

Cooper (1974) believed some type of pupil data should be used to evaluate teacher candidates. The methods described for the Oregon College of Education was one example of how pupil data can replace use of presage and process criteria.

Richey and Cook (1975) provided a model to the American Educational Research Association advocating the use of pupil data. The model was to evaluate a CBTE program of vocational and applied arts education. Among the goals Richey and Cook recommended using pupil data to determine the effects the graduates had upon their pupils. While they did not have sufficient time to implement their evaluation program, Richey and Cook stated, "In order to measure the continuing effect of a program one should do two things: . . . observe the graduate and measure the effect of his teaching on pupil behavior."

Richey and Cook's presentation seemed to typify the literature in this area. Many advocated the use of learner referenced data in evaluation of teachers and preparation programs; however, there appeared to be few functioning programs designed to collect the data.

The authors of this monograph propose to develop and implement a system to collect learner referenced data for formative and summative evaluation of a teacher preparation program. The model and its limitations will be reported in depth. The authors believe the system is a viable approach to objectifying what heretofore has been basically a subjective procedure. Hopefully the initial attempt will be refined and developed into a set of procedures usable for many types of educational evaluations.

Applications of Theory: Limitations

Generally, limitations are included in a summary statement, but in this study limitations are delineated as priority. The nature of learner referenced evaluation of training programs immediately generates several factors which could contaminate the results beyond any reasonable confidence limits. Such an inventory includes, but is not limited to the following: (1) If the data demonstrate a person's ability to effect change in learners, to what extent can this study be reasonably certain that ability was imparted by the training program; (2) What limits should be placed upon a description of the training program (if a student voluntarily spends time observing and working with children and this is positively reflected during the formal practicum--does the training program accordingly receive the credit); (3) Does the training program have the analytical capability to separate those competencies and skills the practicum student is learning on the job from those learned in the training program (the former being more variable and less replicable, the latter being more constant by comparison); (4) Is a practicum with its inherent pressures on the student a realistic setting for gathering learner-referenced data; (5) Will practicum students adequately reflect both the strengths and weaknesses of the training program, or should data be collected only from those people who actually graduate from the program?

Howsam and Houston (1972) wrote "Education--both that of children and that of their teachers--is not noted for its adaptive capacity, but it does respond to developments within the society." Perhaps it is not unreasonable to assume that the adaptive capacity of teacher education programs could be facilitated, and possibly increased by a learner referenced method of program evaluation. Colleges and universities have a history of resisting unilateral mandates for change--be their origin from within or from without. While learner referenced program evaluation is certainly not the complete answer to promote a program's responsiveness, it may satisfactorily blend advice from professionals in the field with the university's penchant for internal, participatory decision making. In any event, university faculty are certain to identify any limitations--like the above mentioned--when they are asked to make program modification decision based upon learner referenced data. As a methodology then, learner referenced evaluation designs are going to have to be refined to a much greater extent before faculty are comfortable with these data.

The politics of facilitating change with these learner referenced data suggests that the model's conceptual design account for as many of the potential contaminents as possible. If the data are narrative they will probably not lend themselves, at this time, to sophisticated or robust analysis procedures. If quantified data are necessary care should be exercised in writing both standard and performance statements to insure that any discrepancies between the two can be precisely measured.

Any conclusions drawn from these learner referenced data must be examined prior to use for adjustments in the standards and/or the training program. Because the circumstances in which this information is gathered are of a short term nature, it could be that a whole set of conclusions from a practicum (data collecting) site might have to be tempered or rejected. An example of such follows: Practicum site Z is used exclusively during the fall months; data collected from this site over a period of three years indicate that the practicum students are weak in their ability to implement language development programs. Traditionally, classroom teacher Z does not start language development programs until the winter months. In an effort to insure that data are collected in this category, a short-term language development program is initiated for the practicum student's benefit--the participating learners are poorly introduced to the program, it is hastily executed and quickly brought to a close. Obviously this information is of little use in seriously evaluating those components of the training program responsible for language development education. Data should be collected carefully over a variety of settings to avoid the usual contaminents encountered in performance evaluation.

Any difference between the program's standard and the practicum student's performance will obviously be counted as a discrepancy. In the absence of quantifiable information (criterion: the learner will correctly complete ten math facts whose sum is no greater than eight in five minutes) the matter of identifying a discrepancy and its magnitude becomes more than a routine matter. For instance: If a task is to increase a youngster's self concept over a period of time, it would not be unreasonable to expect the practicum student working with this child to look for and count a variety of subjectively evaluated changes in the child's behavior--changes that another observer might not see or might discount. Faculty members with even modest philosophical and emotional investments in their own programs and a critic's eye for some of their colleague's programs can be expected to add their judgmental variety to the question: Is this a discrepancy; if so, to what extent?

When discrepancy conclusions are drawn from the data to the satisfaction of those involved in the decision making process the question then becomes one of the training program's willingness to tolerate certain levels of discrepancy between their standards and the student's performance of those standards. Thorough sessions among the training faculty will have to occur before the following question can be answered about each standard statement: What is the maximum discrepancy allowable between this standard (what ought to be) and any resulting performance (what is) before making adjustments in either, or both, the standard statement and the program itself. Because of the lack of extensive developmental research in educational applications of discrepancy analysis, no firm protocol appears to be used for determining these tolerance levels, either prior to or after the data are collected and analyzed. A post hoc determination, however, does introduce yet another weakness into the procedure: the temptation to adjust the toleration levels to fit the present data.

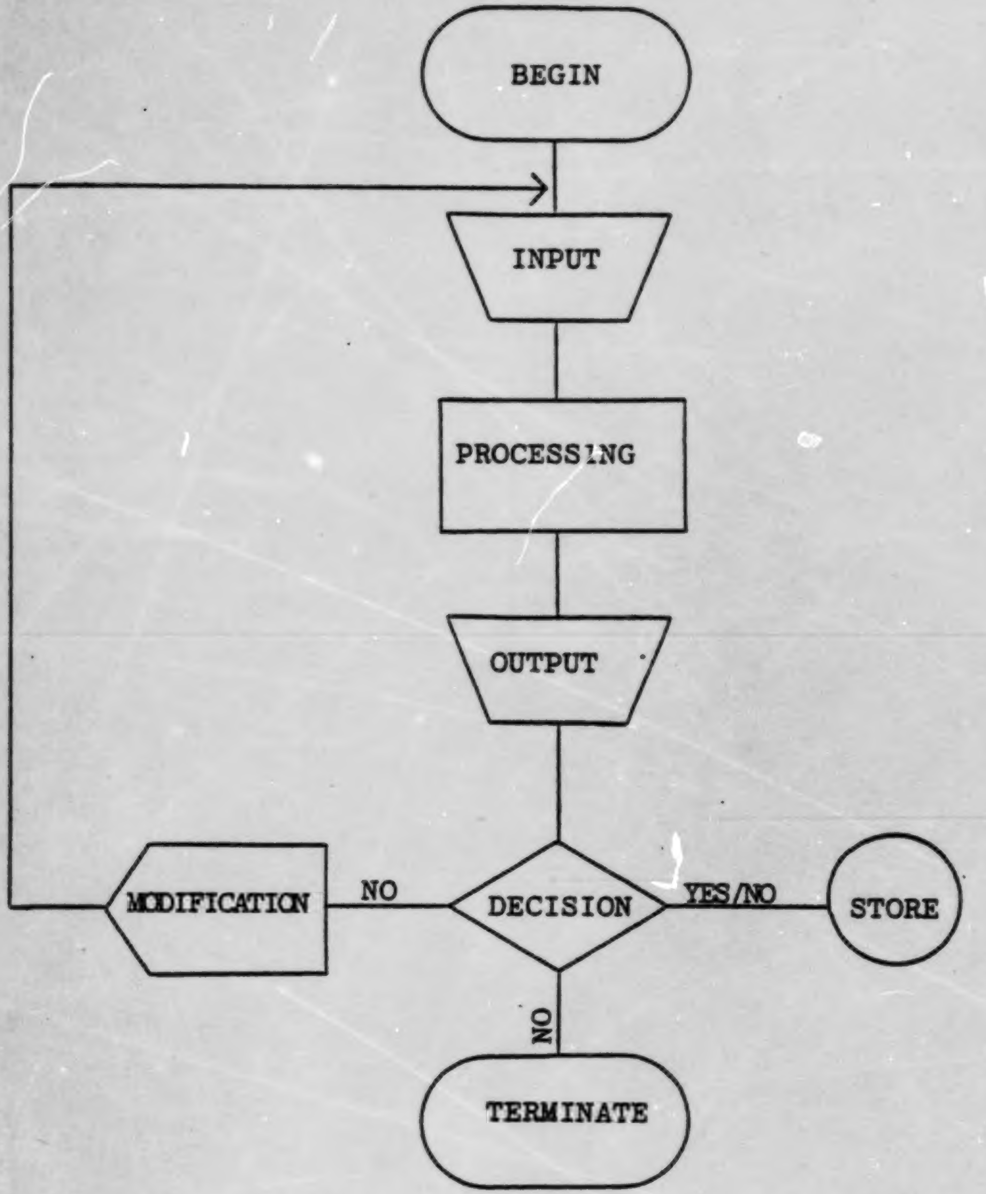
If no toleration limits are established, and all other factors are equal, the training program faculty will be in the position of having to consider the modification of the standard and/or the training program each time a discrepancy appears. This would appear to be limited for two reasons: That kind of perfection (Zero discrepancies) however admirable is most unrealistic and the resulting cost in faculty time alone would be steep. Also as this model now stands it is quite costly both in terms of full time equivalents (FTE) and dollar resources. If the model is implemented on a recycling basis wherein the program commits itself to an ongoing learner referenced evaluation of its efforts, then at least the developmental costs might be modestly reduced over time. The expenditures of both FTE and dollars is proportional to the size of the program to be evaluated; the kind of levels to be included (bachelors, masters, specialist, doctoral) the complexity of the program (i.e., an itinerant, diagnostic/prescriptive, resource teacher program); the proximity of a sufficient number of practicum sites to the training institution; the willingness of the faculty to become involved; administrative support for the evaluation program and a host of other variables peculiar to each institution. It could be that the cost reasons alone (excluding the contaminated nature of the evaluation) account for the lack of development in learner referenced evaluation.

Summary

The limitations and weaknesses of learner referenced evaluation are extensive and consequently discouraging. It is perhaps this reason, more than any other, that accounts for why comparatively little work has been done in this area of evaluation. Yet, from another perspective, most of these shortcomings are probably not insurmountable. The model discussed in this document can be viewed as another point of departure from which the concept of learner referenced evaluation might be improved.

DIAGRAM 1

GENERAL SYSTEMS MODEL


BEGIN
INPUT
PROCESSING
OUTPUT
MODIFICATION
NO
DECISION
YES/NO
STORE
NO
TERMINATE

A Methodology for Learner Referencing the Evaluation of Teacher Education: The Beginnings of a Model

Learner referencing educational evaluation will be described by a systems design model. Such an approach is presented here to identify the components, subcomponents, and the interrelationships involved in learner referenced evaluation. This approach enables university decision makers to group components from the whole unit into subunits for analysis. The formation of subunits follows a logical, sequential order beginning with an array of potential learner referenced standards representative of the teacher training program and ending with the field test of adjustments made in the training program derived in part from learner referenced data. The specification of subunits allows university decision makers to isolate the various stages of processing learner referenced data. Thus, decision makers are able to identify resources, personnel, and activities associated with specific stages of processing learner referenced data; moreover, the specification of subunits enables decision makers to use a formative evaluation processes.

In describing and analyzing learner referenced evaluation, a systems model incorporating a storage unit will be used. The steps involved in learner referenced evaluation will be presented in a flow chart format. The general systems model is presented in Diagram 1. Every system consists of at least three major components: (1) input, (2) processing, and (3) output. The entry point of a system is the input element. Input is the resources and/or information to be processed and analyzed. For example, the inputs to instructing children are: teachers, students, physical plant, and instructional resources.

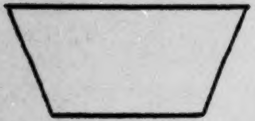
The next element of a system is processing of input resources or information. This component imposes structure or order upon input data. For example, teaching consists of an organized sequence of events in which the teacher uses instructional materials and methods based upon the goals and objectives of a particular course, to impart information to the learner.

The output is the third component of a system approach. This represents the finished product that results from imposing order upon the input data. For example, the graduating teacher candidate is purportedly equipped with a variety of skills to teach children as a result of the teacher preparation program.

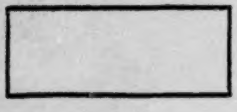
Another component is a decision process for the quality control of the system approach. For example, the quality of the product is evaluated in terms of meeting prescribed standards. If the product meets prescribed standards, a decision is made to store or terminate the activity. However, if the product does not meet prescribed standards, modifications are made and recycled to the input element of the system. This feature allows for selfcorrection and facilitates a quality control for providing minimally acceptable standards for teacher candidates.

Interpretation of Symbols

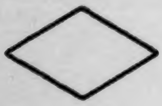
The system approach of learner referenced evaluation will be described in flow chart form. Flow charting describes the direction of activities related learner referenced evaluation. The symbols used in flow charting are described below.



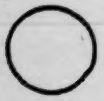
Input/output - represents receiving information for processing /represents product of a system or a stage.



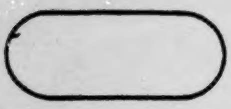
Processing - represents a set of activities based upon predetermined instructions for analyzing input information.



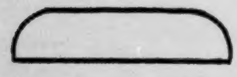
Decision - represents the selection of an alternative from an array of alternatives.



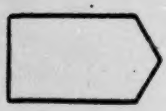
Store - represents the storage of output information to be used at a later stage.



Terminate - represents ending a stage of information flow.



And - represents the junction of two or more components before proceeding to a subsequent stage.



Program Modification - represents a set of instructions or procedures related to making program adjustments.

A systems model is used to describe and analyze learner referenced evaluation data at a teacher training institution.

DIAGRAM 2

STAGE 1

POTENTIAL
LEARNER REFERENCED
STANDARDS

STAGE 2

REPRESENTATIVE
LEARNER REFERENCED
STANDARDS

STAGE 3

FIELD TESTING
LEARNER REFERENCED
STANDARDS

STAGE 4

ANALYSIS OF LEARNER
REFERENCED DATA

STAGE 5

VALIDATION OF
UNIVERSITY STANDARDS

STAGE 6

DISCREPANCY
EVALUATION

STAGE 7

GENERATION OF STRATEGIES
FOR RESOLVING DISCREPANCIES

STAGE 8

FEASIBILITY OF APPLYING
ADJUSTMENTS

STAGE 9

ADJUSTMENTS MADE IN THE
TRAINING PROGRAM

STAGE 10

FIELD TESTING ADJUSTMENTS
MADE IN TRAINING PROGRAM

This model is comprised of ten stages or subsystems. A scheme depicting the ten stages of processing and using learner referenced evaluation data to validate and improve teacher training program is presented in Diagram 2. The scheme represents a descending hierarchy of sequential stages related to processing learner referenced data. These stages range from the initial list of potential learner referenced standards, Stage 1, to the field testing of adjustments made in the training program, Stage 10.

Description of Stage

A brief description of each stage represented in Diagram 2 will provide the reader with an overview of the stages involved in processing and using learner referenced data as a source of information in evaluating a teacher preparation program.

Stage 1 is the acquisition of possible teacher training program standards indicative of learner actions, verifiable by observation.

Stage 2 consists of teacher training institution faculty verifying potential learner reference standards as representative of the training program and assigning a criterion value for each standard. This process provides the training institution with operationalized goal statements of what elements purportedly represent the training program.

Stage 3 encompasses the generation of specific objectives for the learner in the public school setting. For example, the university standard of remediating reading problems is incorporated in specific objectives of improving word attack skills for the learner. At this stage a variety of objectives are determined for a specific child or groups of children.

Stage 4 consists of processing learner referenced data to determine specific objectives the practicum student could implement as measured by behavior change in children.

Stage 5 considers the external validation of university standards by public classroom's applicability.

Stage 6 subsumes the comparison of teacher training program standards (what ought to be) with performance measures (what is) derived from trainee's work with children in the public school setting. Such a procedure provides the teacher training program with empirically based data to judge congruencies and discrepancies in the various components of the training program.

Stage 7 involves university decision makers generating strategies and methods for eliminating discrepancies between program standards and actual performance.

Stage 8 represents the consideration of adjustment possibilities in the training program. University decision makers consider cost, resources, and personnel needed to eliminate discrepancies between standard and performance.

Stage 9 incorporates making actual administrative and curricular changes in the subcomponents of the training program.

Stage 10 consists of determining the effectiveness of changes made in the training program. These changes are measured by trainee's ability to effect behavioral change with children in the public school setting. The above review is intended to depict the sequential steps in the process of using learner referenced information to validate and improve teacher preparation programs.

The ten stages of using learner reference data will be considered as components of a complete system, with each stage representing a subsystem within the total learner referenced system. Each subsystem will be discussed and analyzed using input data or resources, processing of information, output of the processed information, decision points and storage of information for use at a later stage.

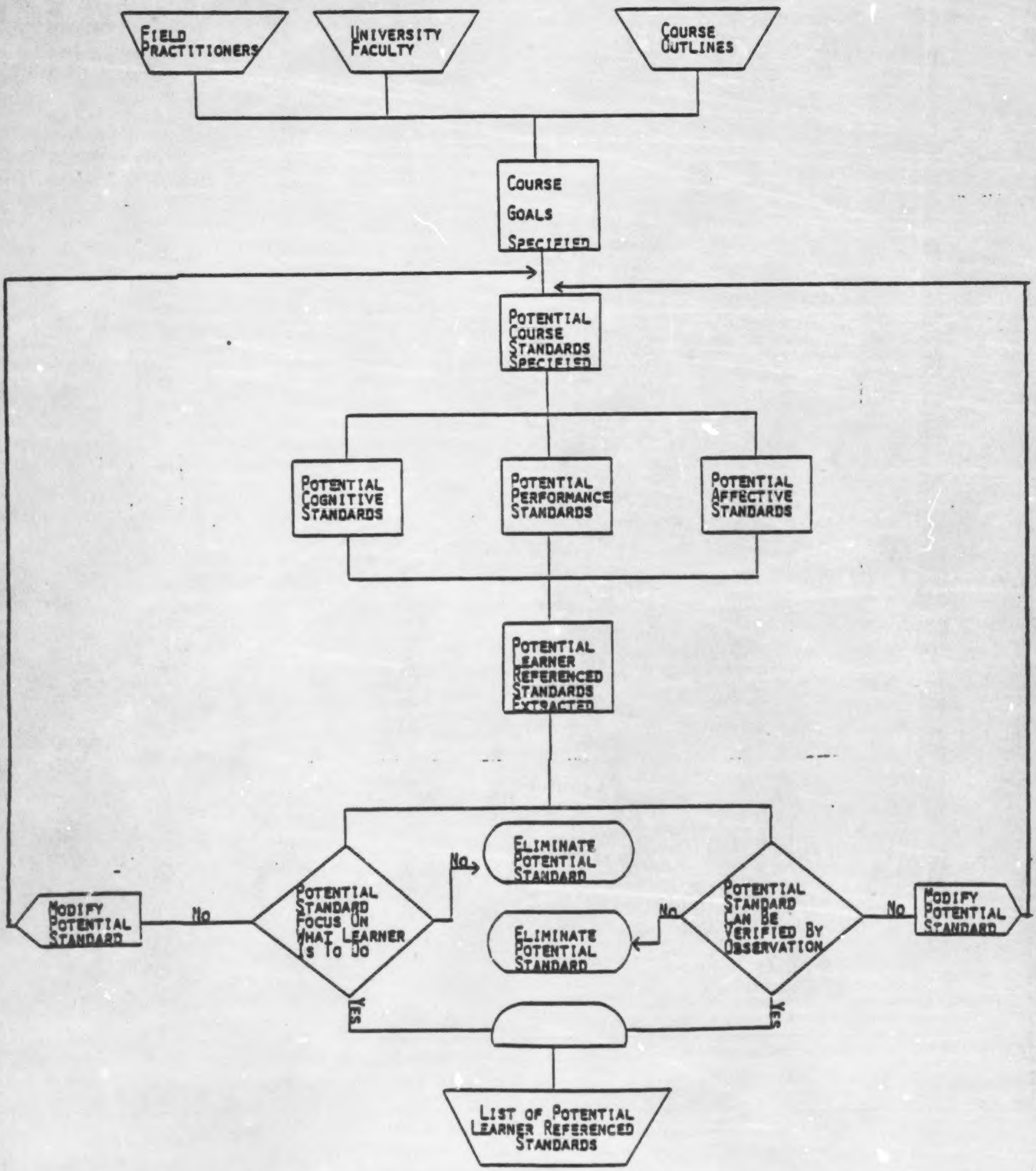
Stage 1

The analysis of the various stages of processing

DIAGRAM 3

STAGE 1

POTENTIAL LEARNER REFERENCED STANDARDS


FIELD PRACTITIONERS
UNIVERSITY FACULTY
COURSE OUTLINES
COURSE GOALS SPECIFIED
POTENTIAL COURSE STANDARDS SPECIFIED
POTENTIAL COGNITIVE STANDARDS
POTENTIAL PERFORMANCE STANDARDS
POTENTIAL AFFECTIVE STANDARDS
POTENTIAL LEARNER REFERENCED STANDARDS EXTRACTED
POTENTIAL STANDARD FOCUS ON WHAT LEARNER IS TO DO
No
ELIMINATE POTENTIAL STANDARD
No
MODIFY POTENTIAL STANDARD
POTENTIAL STANDARD CAN BE VERIFIED BY OBSERVATION
No
ELIMINATE POTENTIAL STANDARD
No
MODIFY POTENTIAL STANDARD
YES
YES
LIST OF POTENTIAL LEARNER REFERENCED STANDARDS

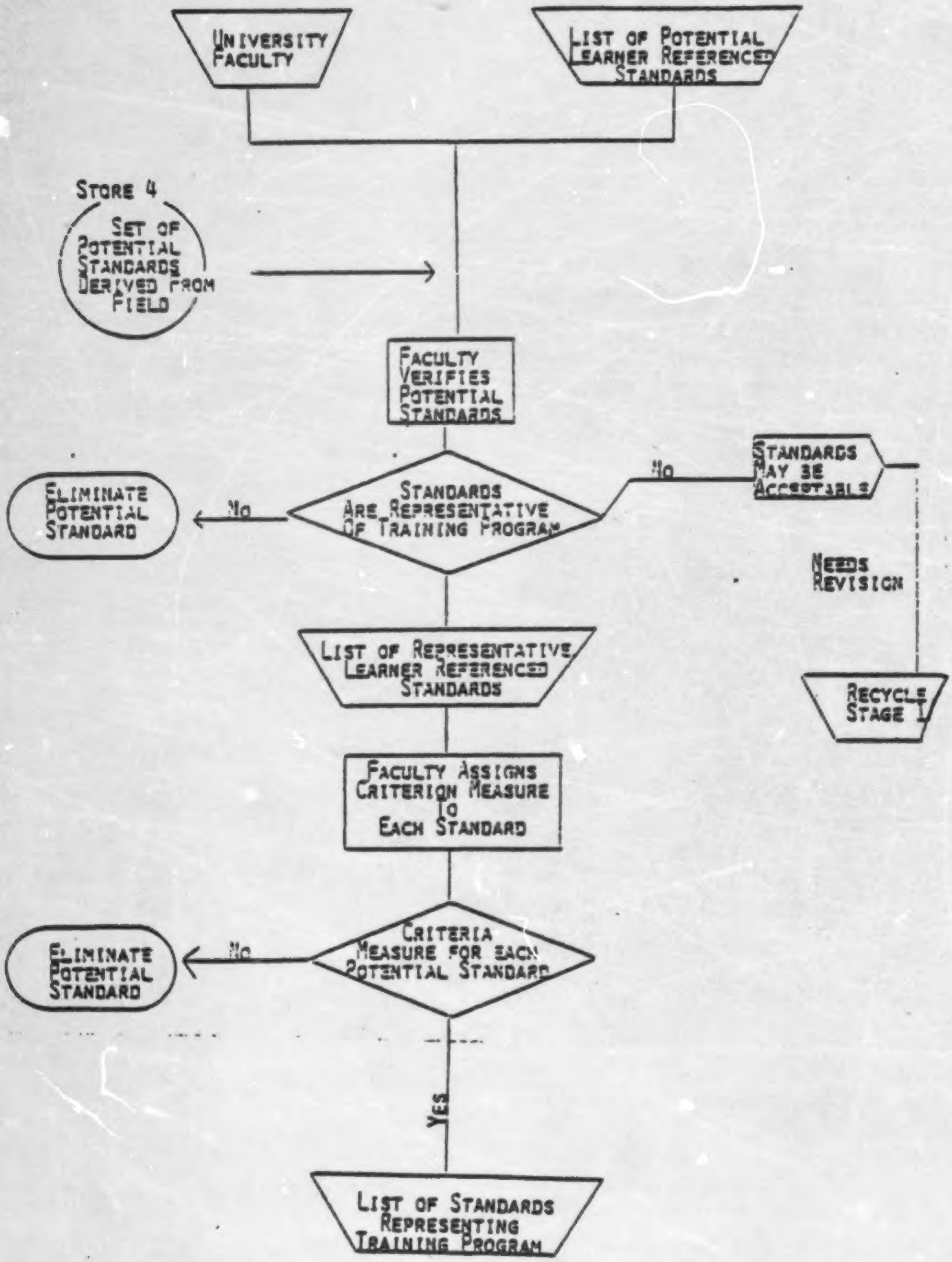
learner referenced data begins by describing Stage 1 - (Diagram 3). This stage encompasses establishing teacher preparation standards based upon input of field practitioners and university faculty. Standards represent trainee's expected levels of preparation in various teaching skills.

Input sources for obtaining potential learner referenced standards include field practitioners and university faculty. Field practitioners consist of teachers, coordinators, supervisors, building principals, and district level administrators. The course outlines provide information in terms of major emphasis of training program subcomponents. Initially field practitioners, and university faculty jointly engage in the process of specifying broad teacher training goals. Next, university faculty members operationalize educational goals as specified course objectives. Such objectives are categorized into three major curricular areas: (1) potential cognitive standards, (2) potential performance standards, and (3) potential affective standards. Cognitive standards are related to mental or intellectual processes of the teacher candidates. For example, "trainees are required to have a basic awareness of phonic and visual approaches to reading." Performance standards are competencies or specific teaching skills trainees must demonstrate: to illustrate, "a trainee must demonstrate competency in the administration of formal educational-diagnostic tests of reading skills." Affective standards reflect the personality dimension or self: for example, "a trainee will be

DIAGRAM 4

STAGE 2

REPRESENTATIVE LEARNER REFERENCED STANDARDS


University Faculty
List of Potential Learner Referenced Standards
Store 4
Set of Potential Standards Derived from Field
Faculty Verifies Potential Standards
Eliminate Potential Standard
No
Standards Are Representative Of Training Program
No
Standards May Be Acceptable
Needs Revision
Recycle Stage I
List of Representative Learner Referenced Standards
Faculty Assigns Criterion Measure To Each Standard
Eliminate Potential Standard
No
Criteria Measure for Each Potential Standard
Yes
List of Standards Representing Training Program

able to improve a child's self concept."

From cognitive, performance, and affective standards, the university faculty selects those standards suitable for learner referenced evaluation, i.e., standards evaluated by the teacher candidates' ability to change behavior patterns of children. Learner reference standards emphasize what the learner (child) will be able to do as a result of instructional intervention. For example, "the trainee-in-process will be able to remediate arithmetic computational skill deficits with a child or group of children." This would be evaluated by measuring the child's ability to do computational problems in arithmetic.

A training standard was judged as learner referenced if it focused on what the learner was to do and if the potential standard could be verified by observation or criterion measure. If both conditions were not satisfied, the potential standard was eliminated or not considered for learner referenced evaluation. When the conditions focused on the learner and observation or measurement existed, a list of potential learner referenced standards was obtained is the output of this stage.

Stage 2

At Stage 2, university faculty established learner referenced standards which represent the teacher training program (Diagram 4). The input sources were university faculty and the list of potential learner referenced standards obtained from Stage 1.

The faculty engage in the process of judging potential standards as either representative or non-representative. A standard is judged representative if it reflects the purported intent of the training program. If a standard clearly does not represent the intent of the program it is eliminated. Also, a standard may be questionable in that it may or may not be acceptable. Such standards are recycled to Stage 1 to compare them with the purported goals of the training program.

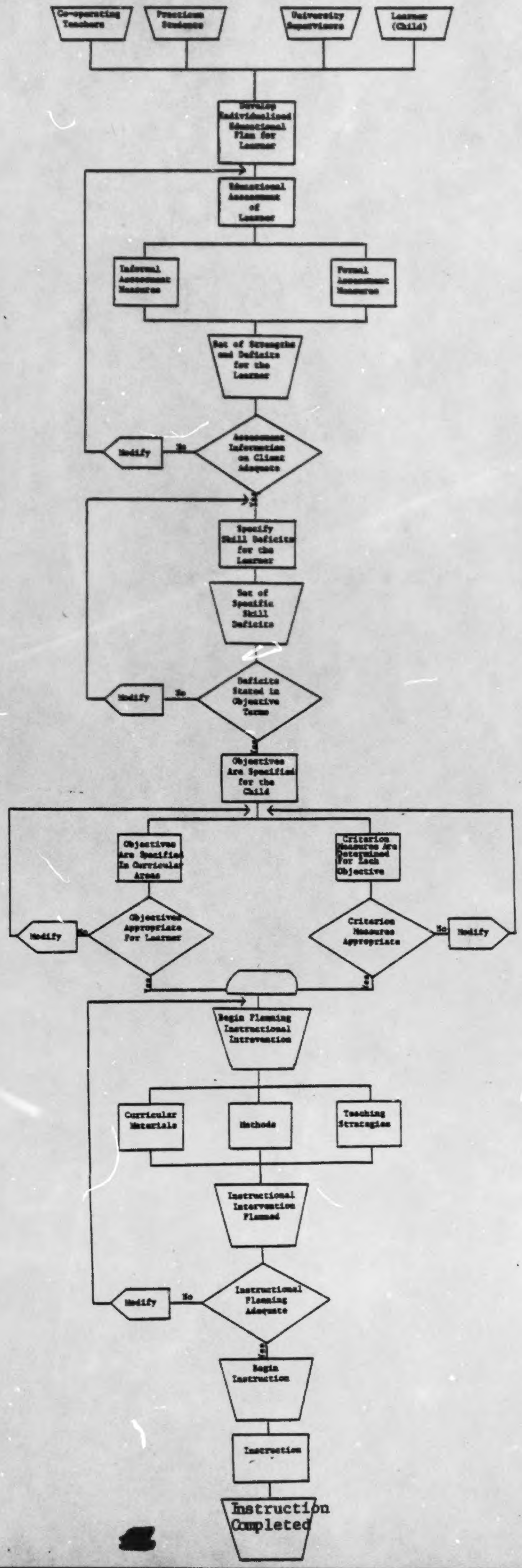
Once a list of representative standards are obtained, the faculty rates each standard in terms of practicum student's expected level of preparation in various skill areas. Faculty members weighted the standard by rating each standard on a 1-5 scale (Appendix A). Then a median value is calculated for each standard. The median value represents the criterion measure associated with each standard. If over half of the faculty members are unable to rate a standard it is eliminated from any further consideration. The output of this stage is a list of training program standards with associated criterion measures.

Stage 3

At Stage 3, the standards (general set of learner referenced objectives with associated criterion measures) are field tested in the public schools. This stage is

DIAGRAM 3

STAGE 1 Field Testing Learner Referenced Standards


Co-operating Teachers
Practicum Students
University Supervisors
Learner (Child)
Develop Individualized Educational Plan for Learner
Educational Assessment of Learner
Informal Assessment Measures
Formal Assessment Measures
Set of Strengths and Deficits for the Learner
Assessment Information on Client Adequate
No
Modify
Yes
Specify Skill Deficits for the Learner
Set of Specific Skill Deficits
Deficits Stated in Objective Terms
No
Modify
Yes
Objectives Are Specified for the Child
Objectives Are Specified In Curricular Areas
Criterion Measures Are Determined For Each Objective
Objectives Appropriate For Learner
No
Modify
Yes
Criterion Measures Appropriate
No
Modify
Yes
Begin Planning Instructional Intervention
Curricular Materials
Methods
Teaching Strategies
Instructional Intervention Planned
Instructional Planning Adequate
No
Modify
Yes
Begin Instruction
Instruction
Instruction Completed

INDIVIDUALIZED EDUCATIONAL PLAN

1) Practicum Student's Name____________ (2) Child or Client's Name____________
(One child/client only)

(3) Sex: M F (4) Age____ Grade____

) **SPECIFIC SKILL DEFICIT** State one specific skill deficit for child/client	
) **MAJOR AREA** Check one or more areas	____Learning Process ____Motor ____Reading ____Self Concept ____Math ____Language ____Other (Please specify)____________
7) **EDUCATIONAL ASSESSMENT** Report skill deficit in measurable terms, i.e., frequency or time or % or test scores	
8) **METHOD** State specific method used in remediating specific skill deficit	
) **MATERIAL** State specific material used in remediating specific skill deficit (if applicable)	
10) **ANTICIPATED PERFORMANCE** State criterion (in measurable terms) for acceptable performance	
11) **NARRATIVE** Write an educational objective in narrative form, using information from 2, 5, 7, 8, 9, & 10 above	

Fill In and Complete After Intervention of Methods & Materials

12) **ACTUAL PERFORMANCE** Report actual outcome in measurable terms, i.e., frequency or time or % or test scores	
13) **CHANGES** If method and/or material are changed, please list rationale	

represented in Diagram 5. The input sources for field testing learner referenced standards are: (1) cooperating teachers, (2) practicum students, (3) university supervisors, and (4) learner (child). Cooperating teachers are master teachers that supervise the practicum student in the public school setting. Practicum students are trainees-in-process who are working with children on a full-time basis in the public schools. University supervisors are representatives of the training institution that evaluate and supervise the practicum students.

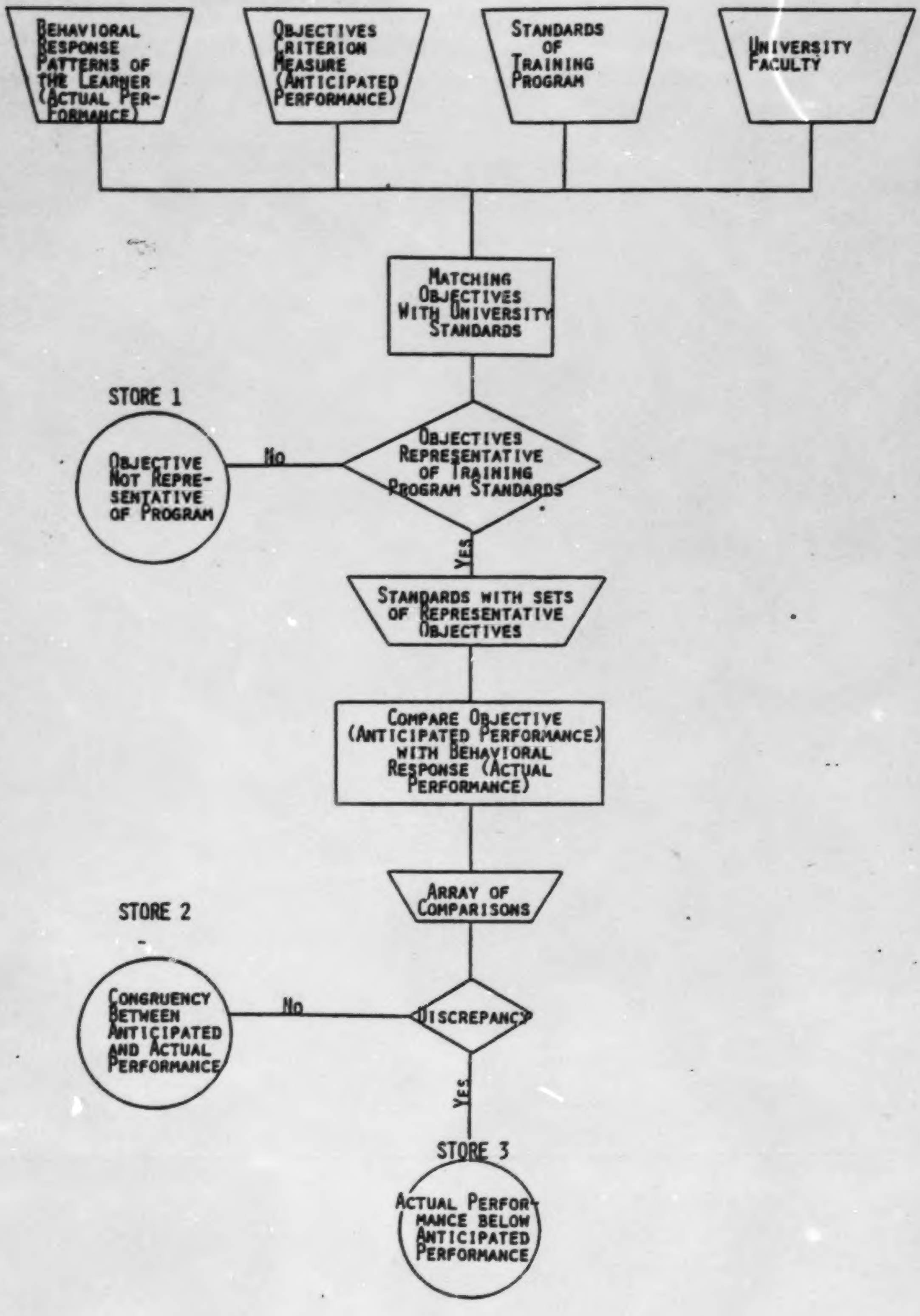
The learner (child) receives instruction from the practicum student. An individualized eduational plan was developed to facilitate instructional planning for the child (Diagram 6). Initially, the practicum student is to operationalize the major educational area checked by detailing the specific skill deficit of the child. Refer to Specific Skill Deficit on the Individualized Educational Plan (Diagram 6). The rationale for such a methodological approach is to obtain specific objectives from the public school classroom setting as contrasted to testing a priori objectives set by the university training program. Developing an individualized education plan involves obtaining assessment information for planning an instructional program for the learner. Such a procedure utilizes either informal or formal assessment measures. The assessment information is judged by the university supervisor and the cooperating teacher as adequate or inadequate. If inadequate, the practicum student reassesses the particular skill deficits of the learner. The judgments of the university supervisor and cooperating teacher provides monitoring to assure quality control within the learner referenced evaluation model.

Once educational assessment information is obtained the practicum student specifies the skill deficit to be remediated by instruction. The set of specific skill deficits must be in objective terms. If such objectives are vague, the practicum student revises until the objective criterion are satisfied. Specificity is judged by both the university supervisor and cooperating teacher. Once skill deficits are specified, the practicum student writes educational objectives for the learner. Objectives are written in terms of curricular content area with appropriate criterion measures for each objective. The university supervisor and cooperating teacher judges the appropriateness of objectives for curricular content and adequacy of the criteria measures. If both conditions are not satisfied, the practicum student revises the objective. When both conditions (curricular relevancy and criteria measures) are satisfied, the practicum student begin planning instructional intervention. Instructional planning consists of the practicum student selecting curricular materials, methods, and teaching strategies to meet the educational needs of the learner. Instructional planning is judged as either adequate or inadequate by both the university

DIAGRAM 7

STAGE 4

ANALYSIS OF LEARNER REFERENCED DATA


BEHAVIORAL RESPONSE PATTERNS OF THE LEARNER (ACTUAL PERFORMANCE)
OBJECTIVES CRITERION MEASURE (ANTICIPATED PERFORMANCE)
STANDARDS OF TRAINING PROGRAM
UNIVERSITY FACULTY
MATCHING OBJECTIVES WITH UNIVERSITY STANDARDS
STORE 1
OBJECTIVE NOT REPRESENTATIVE OF PROGRAM
NO
OBJECTIVES REPRESENTATIVE OF TRAINING PROGRAM STANDARDS
YES
STANDARDS WITH SETS OF REPRESENTATIVE OBJECTIVES
COMPARE OBJECTIVE (ANTICIPATED PERFORMANCE) WITH BEHAVIORAL RESPONSE (ACTUAL PERFORMANCE)
ARRAY OF COMPARISONS
STORE 2
CONGRUENCY BETWEEN ANTICIPATED AND ACTUAL PERFORMANCE
NO
DISCREPANCY
YES
STORE 3
ACTUAL PERFORMANCE BELOW ANTICIPATED PERFORMANCE

supervisors and cooperating teacher. If planning is inadequate the practicum student revises the planned use of materials, methods, or strategies until the plan is considered adequate. When instructional planning is deemed adequate, the practicum student begins instruction with the learner. Instruction involves the practicum student and learner's interaction to change the behavior pattern of the learner. Following instruction, curriculum criterion measures of the learner's response are obtained. Such information is to be used in the data analysis stage. Data are collected in terms of objectives specified for the learner as contrasted to a process-product orientation.

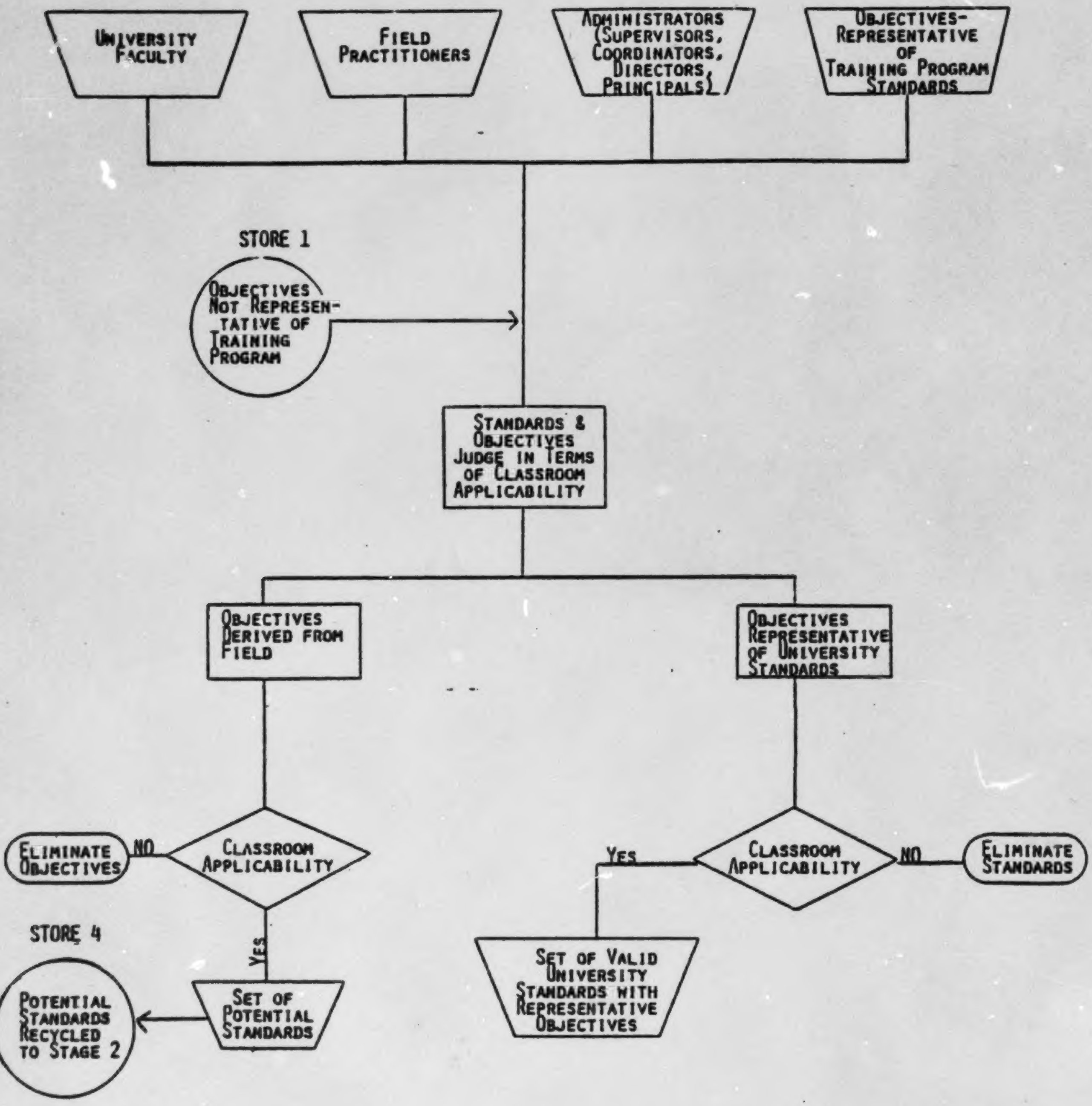
Stage 4

At Stage 4 (Diagram 7), the results of field testing learner referenced standards are analyzed for discrepancies and congruencies between actual performance measures and anticipated performance measures derived from the individualized educational plan. The input sources for analysis of learner referenced data are behavioral response patterns of the learner (actual performance), anticipated performance measures set for the learner, standards of the training program, and university faculty. The practicum student's specific objectives are matched with university standards (general objectives). By consensus university faculty categorizes individual educational plans as either representative or non-representative of the training program.

DIAGRAM 8

STAGE 5

VALIDATION OF UNIVERSITY STANDARDS


UNIVERSITY FACULTY
FIELD PRACTITIONERS
ADMINISTRATORS (SUPERVISORS, COORDINATORS, DIRECTORS, PRINCIPALS)
OBJECTIVES-REPRESENTATIVE OF TRAINING PROGRAM STANDARDS
STORE 1
OBJECTIVES NOT REPRESENTATIVE OF TRAINING PROGRAM
STANDARDS & OBJECTIVES JUDGE IN TERMS OF CLASSROOM APPLICABILITY
OBJECTIVES DERIVED FROM FIELD
OBJECTIVES REPRESENTATIVE OF UNIVERSITY STANDARDS
ELIMINATE OBJECTIVES
NO
CLASSROOM APPLICABILITY
YES
CLASSROOM APPLICABILITY
NO
ELIMINATE STANDARDS
STORE 4
YES
POTENTIAL STANDARDS RECYCLED TO STAGE 2
SET OF POTENTIAL STANDARDS
SET OF VALID UNIVERSITY STANDARDS WITH REPRESENTATIVE OBJECTIVES

Objectives not representative of the training program are stored (Store 1); to be used later in Stage 5. Objectives representative of general standards were processed by comparing objective (anticipated performance) with behavioral response (actual performance). Such a process resulted in comparisons reported as either a congruency between anticipated and actual performance (Store 2) or a discrepancy as actual performance occurred below anticipated performance (Store 3). Data in Store 2 and Store 3 are used in Stage 6 - Discrepancy Evaluation.

Stage 5

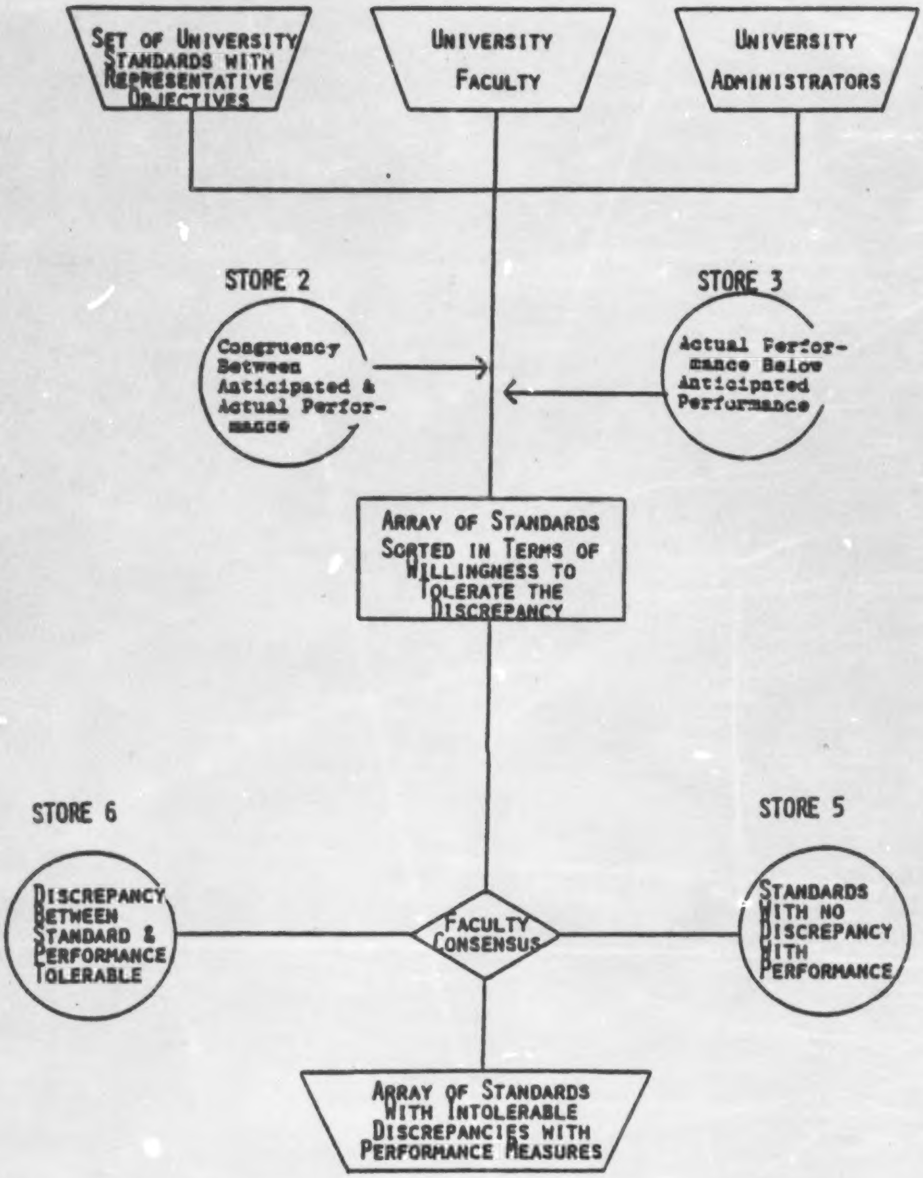
At Stage 5 (Diagram 8) the university standards are validated in terms of classroom applicability. The input sources for this stage are: (1) university faculty, (2) field practitioners, (3) administrators, (4) objectives representative of program standards, and (5) objectives not representative of the training program (Store 1).

The three groups of educators review university standards and objectives obtained in the public classroom setting for classroom applicability. These groups judge objectives derived from the field and objectives representative of university standards for importance and frequency of use with children in the classroom setting. Objectives derived from the field were either eliminated if they were judged as not important and not frequently used or retained as potential standards (Store 4) if judged applicable to the

DIAGRAM 9

STAGE 6

DISCREPANCY EVALUATION


Set of University Standards with Representative Objectives
University Faculty
University Administrators
STORE 2
Congruency Between Anticipated & Actual Performance
STORE 3
Actual Performance Below Anticipated Performance
Array of Standards Sorted in Terms of Willingness to Tolerate the Discrepancy
STORE 6
Discrepancy Between Standard & Performance Tolerable
STORE 5
Standards With no Discrepancy With Performance
Faculty Consensus
Array of Standards With Intolerable Discrepancies with Performance Measures

classroom setting. Such standards are recycled to Stage 2 where faculty verify the standards as representative of the training program and criterion measure assign to the standard.

The objectives representative of the university training program standards were considered for their classroom applicability. This phase of Stage 5 provides public school personnel an opportunity to assist in validating the goals and objectives of the teacher preparation program. The objectives not considered applicable to the classroom were eliminated from the training program. The output from this decision process was a list of validated objectives of the teacher preparation program.

This process was essential in validating the objectives of the training program and also in providing public school educators with a voice in the types of training received by teacher candidates. Without the joint decision making process the validity of training program standards would remain in question and the input from field practitioners are minimized. Stage 5 also facilitates communication between public schools and the training institution servicing those schools. Communication has often been a weak link in the preparation of teachers, open to just criticism and concern.

Stage 6

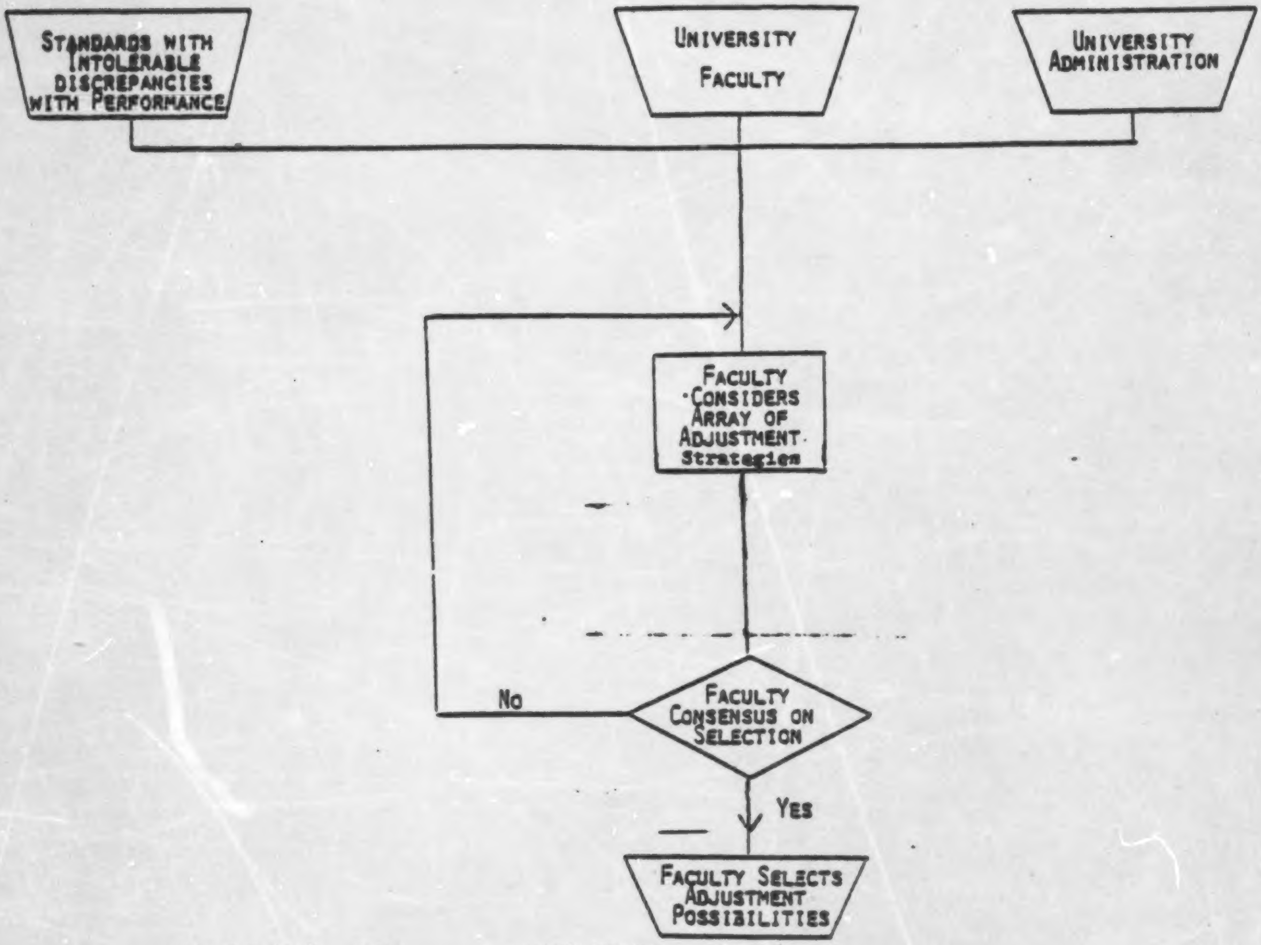
At Stage 6 (Diagram 9), learner referenced data and university training program standards are evaluated in a discrepancy evaluation format. The input sources for this stage are a set of university standards with representative objectives, university faculty, and university administrators. Also, the results of learner referenced data analysis are used as input sources (Store 2: Congruency between Anticipated and Actual Performance; Store 3: Discrepancy between Actual and Anticipated Performance).

The set of standards validated in Stage 5 are compared with performance measures from Stage 4 to determine discrepancies between performance and standards. The discrepancy evaluation process involved comparing university standards (What ought to be) with learner referenced performance measures (What is). The university standards are represented by a median value assigned to each major skill area. For example, the median value assigned by faculty to the skill area of remediating written language deficits may have been 4.7 on a 1-5 scale, or, the median value assigned to the skill area of remediating visual perceptual deficits may have been 2.8 on a 1-5 scale. The median value representing the standards is compared with performance measures obtained from learner referenced measures. The standard is compared with learner referenced data reflecting the percentage of practicum students able to implement behavior change with children indicated by actual performance measures. For example, if a median score of 4.7 on a 5.0 scale is obtained for a skill area, as rated by faculty and 90% of the practicum students are able to implement

DIAGRAM 10

STAGE 7

GENERATION OF STRATEGIES FOR RESOLVING DISCREPANCIES


STANDARDS WITH INTOLERABLE DISCREPANCIES WITH PERFORMANCE
UNIVERSITY FACULTY
UNIVERSITY ADMINISTRATION
FACULTY CONSIDERS ARRAY OF ADJUSTMENT Strategies
FACULTY CONSENSUS ON SELECTION
No
YES
FACULTY SELECTS ADJUSTMENT POSSIBILITIES

change in the skill area, the faculty makes one of the following decisions: (1) the discrepancy between standard and performance is tolerable (Store 6), (2) no discrepancy exists between standard and performance (Store 5), or (3) an intolerable discrepancy occurs between standard and performance measure. Thus the array of standards with intolerable discrepancies represents the output product of this stage.

Stage 7

Stage 7 (Diagram 10) requires the input of university faculty, administration, and the list of standards with intolerable discrepancies. The purpose of this stage is to generate strategies for resolving these discrepancies.

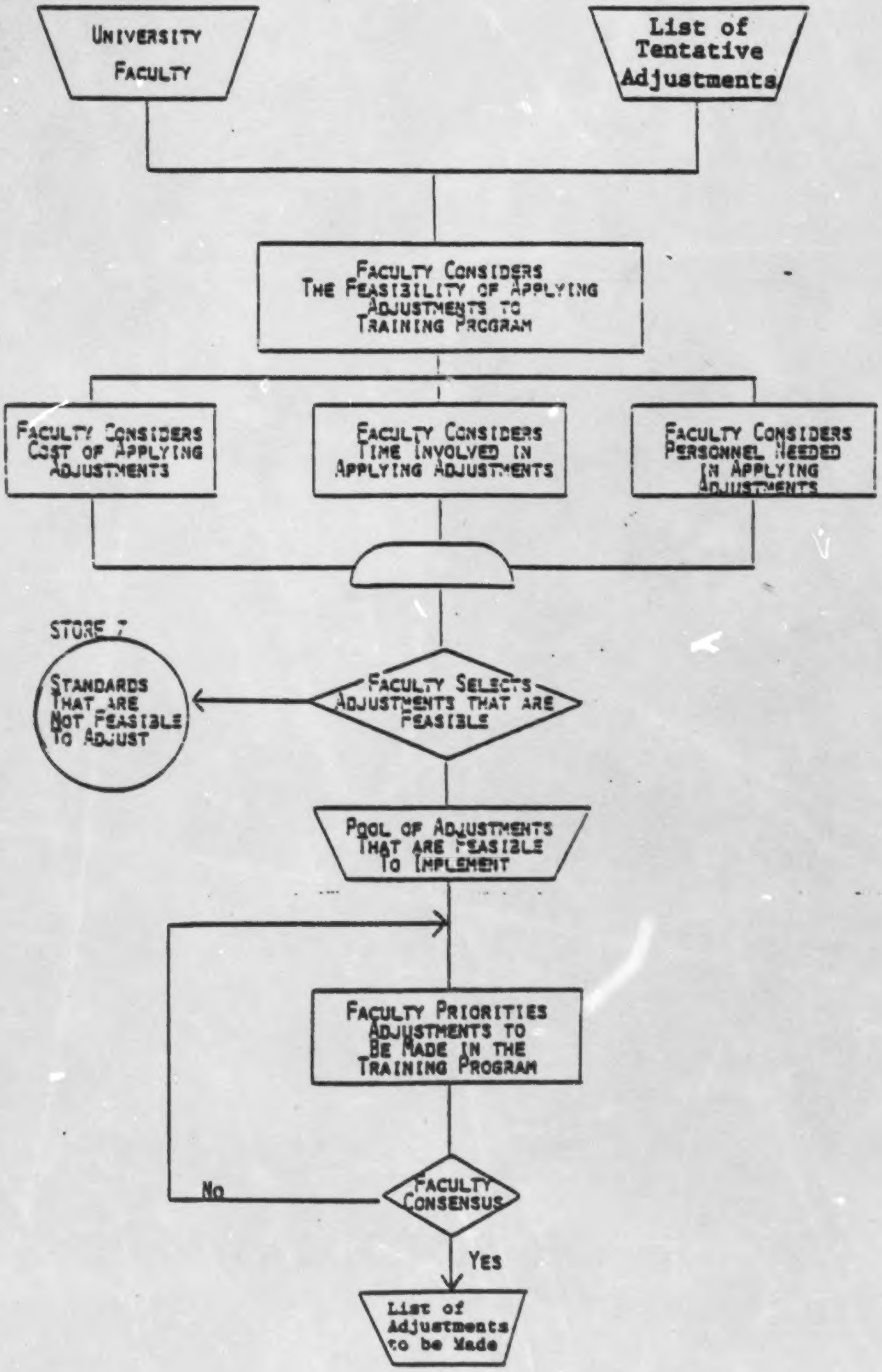
The process is one of arriving at a consensus for the various strategies which may be employed in the revision of the teacher preparation program. Once the faculty and administration arrive at a consensus, the various strategies would be utilized in developing methods for change.

These strategies should be general in nature to allow for a wide variety of options. For example strategies for resolving discrepancies may include more student teaching experiences, additional methods courses, participation in specific workshops, independent studies over specified topics, developing instructional units, writing individualized educational plans, administering and interpreting diagnostic tests, or using additional community resources. It

DIAGRAM 11

STAGE 8

FEASIBILITY OF ADJUSTMENTS


UNIVERSITY FACULTY
List of Tentative Adjustments
FACULTY CONSIDERS THE FEASIBILITY OF APPLYING ADJUSTMENTS TO TRAINING PROGRAM
FACULTY CONSIDERS COST OF APPLYING ADJUSTMENTS
FACULTY CONSIDERS TIME INVOLVED IN APPLYING ADJUSTMENTS
FACULTY CONSIDERS PERSONNEL NEEDED IN APPLYING ADJUSTMENTS
STORE 7
STANDARDS THAT ARE NOT FEASIBLE TO ADJUST
FACULTY SELECTS ADJUSTMENTS THAT ARE FEASIBLE
POOL OF ADJUSTMENTS THAT ARE FEASIBLE TO IMPLEMENT
FACULTY PRIORITIES ADJUSTMENTS TO BE MADE IN THE TRAINING PROGRAM
FACULTY CONSENSUS
No
YES
List of Adjustments to be Made

should be stressed at this point that the generation of strategies should be as inclusive of all the options of the university as possible. The phase of faculty selection will narrow the options to those which the faculty sees as feasible. If a decision can not be reached for the strategies to be used, the decision makers should recycle their efforts for other options so a final consensus may be reached. The output of this stage is an array of adjustment possibilities that could be applied to the training program. The intent of such adjustments is to improve the quality of the training program.

Stage 8

The input for Stage 8 (Diagram 11) comes from university faculty, administration, and the list of adjustment possibilities from Stage 7. The function of this stage is to determine which adjustments are feasible to be implemented in the teacher preparation program in terms of the cost, time, and personnel to reduce or eliminate discrepancies.

The cost of adjusting the training program must be considered by both university administration and faculty. Cost is perhaps the most-limiting factor in changing programs. If the fiscal support is not available it may effect many of the possible adjustments. For example, if an adjustment being considered is for increased supervision of student teachers and funds are not available to pay for additional transportation costs then this adjustment, while viable, may not be feasible due to cost considerations.

Time constraints are another factor which will influence adjustments made in the training program. Increases in the amount of time required to adjust training program components may be prohibitive or unreasonable. On the other hand instructional time may be allocated to activities not considered as valid and the appropriate adjustment may be elimination of that particular block of instruction.

Personnel needs in applying adjustments must also be considered. If adjustments can not be made without additional personnel and these resources are not available then the adjustment will have to be discarded or considered not feasible. If, however, adjustments can be incorporated utilizing existing personnel, then this factor is not a constraint.

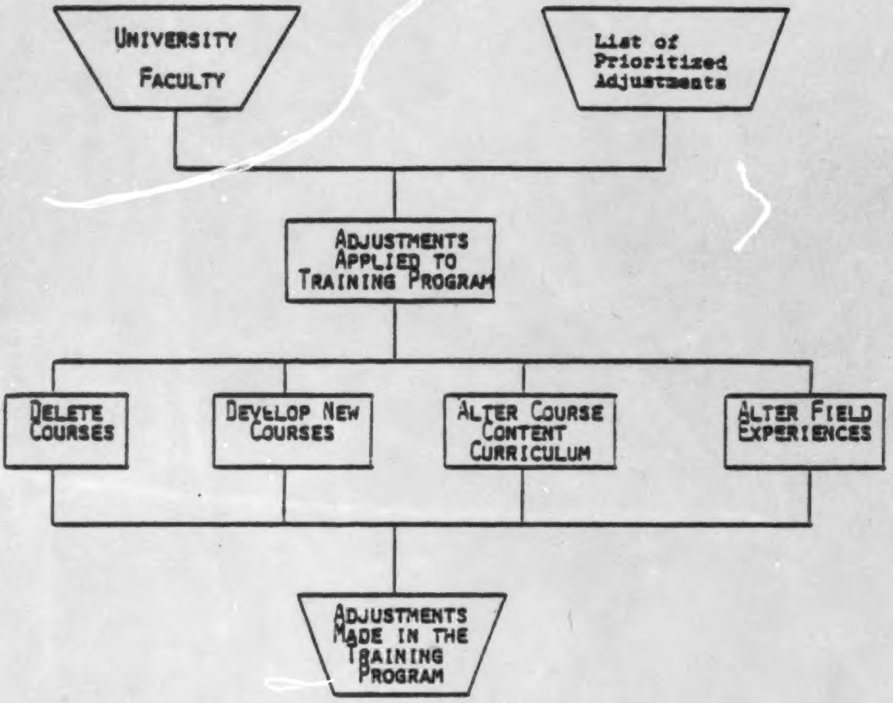
After engaging in the process of considering feasibility of applying adjustments for cost, time, and personnel needed, the faculty sorts standards as not feasible to adjust (Store 7) or adjustments that are feasible to implement. Standards are not feasible to adjust (Store 7) respective to excessive cost, excessive time, and additional personnel required to make such adjustments. For example, an adjustment consideration may be to revise field experiences of undergraduate trainees. Such an adjustment may not be feasible in terms of additional full-time-equivalent (FTE) required to implement undergraduate field experiences.

For adjustments that are feasible to implement, the faculty prioritizes such adjustments. Faculty consensus

DIAGRAM 12

STAGE 9

Adjustments Made in the Training Program


University Faculty
List of Prioritized Adjustments
Adjustments Applied to Training Program
Delete Courses
Develop New Courses
Alter Course Content Curriculum
Alter Field Experiences
Adjustments Made in the Training Program

is involved in the setting of priorities. For example, the faculty may agree that the first priority is that a mini-practicum should be incorporated into all educational methods courses. Secondly, an additional FTE is required in the area of the supervision master level practicum students. Thus, the output of this stage is a prioritized list of adjustments to be made in the training program.

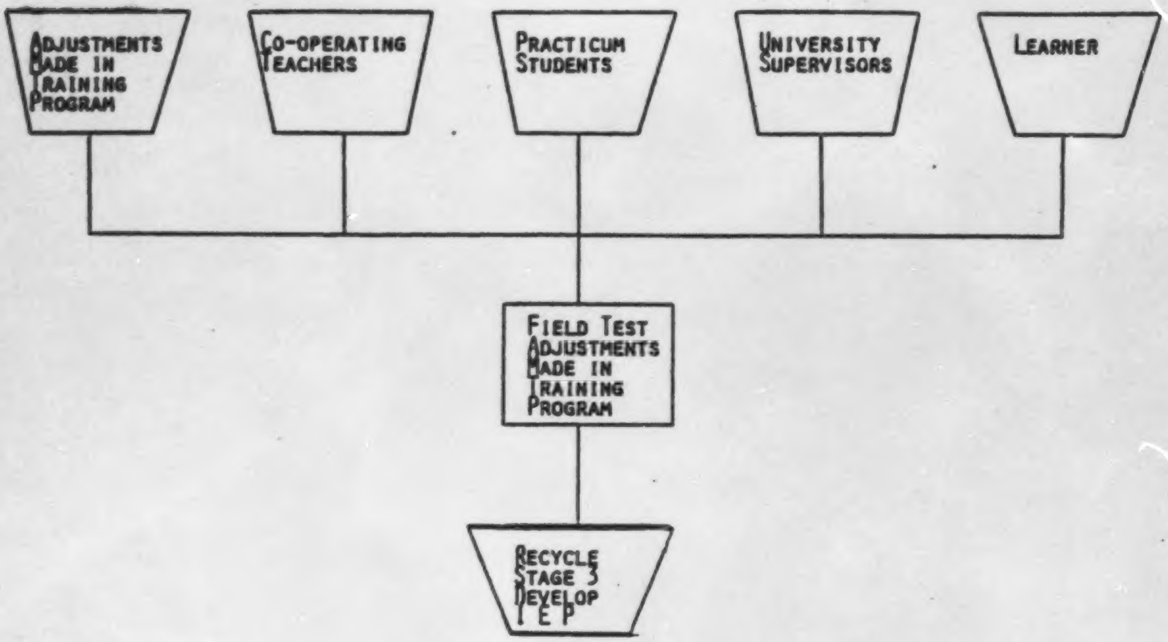
Stage 9

At Stage 9 (Diagram 12) adjustments are made in the training program. Ideas from university faculty, administration, together with the list of prioritized adjustments to be made in the training program are the input sources. Faculty and administrators apply adjustments to the training program in terms of: (1) deleting courses, (2) developing new courses, (3) altering course content, and (4) alter field experiences. For example, a top priority adjustment may be to incorporate a mini-practicum into the methods courses. Such an adjustment would result in the altering the course content of the methods course. Another prioritized adjustment may be to eliminate the number of hours required in the area of formal assessment. Such an adjustment would result in the deleting of formal assessment courses. The output of this stage is actual adjustments made in the training program.

STAGE 10

DIAGRAM 13

FIELD TESTING ADJUSTMENTS MADE IN TRAINING PROGRAM


ADJUSTMENTS MADE IN TRAINING PROGRAM
CO-OPERATING TEACHERS
PRACTICUM STUDENTS
UNIVERSITY SUPERVISORS
LEARNER
FIELD TEST ADJUSTMENTS MADE IN TRAINING PROGRAM
RECYCLE STAGE 3 DEVELOP I E P

Stage 10

Stage 10 (Diagram 13) represents the field testing of adjustments made in the training program. The input sources are: (1) adjustments made in the training program, (2) cooperating teachers, (3) practicum students, (4) university supervisors, and (4) the learner.

The process of field testing adjustments made in the training program involve developing individualized educational plans for the learner as represented in Stage 3 (Diagram 5). Such a process enables university decision makers to test the effects of applying adjustments to the training porgram components. The output of this stage is to recycle data gathering procedures. Thus, the purpose of the learner referenced model is to provide the training institution with a continuous flow of information from internal and external sources in an attempt to continually improve and update the teacher training program.

An Application of the Model:
Preliminary Findings

To implement the learner referenced evaluation model, the program chosen was a master's level preparation of special education teachers. This sixty quarter hour program culminated in a Master of Arts degree and state certification for teaching special education students in grades kindergarten through twelve.

The instructional program was designed to accommodate teacher candidates with varying degrees of teaching experience. Many students had certification in related teaching fields such as elementary or secondary education. Other students had certification in areas such as special education, sociology, psychology, biology, history, and fine arts. The experiences of the teacher candidates also varied; some had taught several years, while others had no direct experience with children.

Stage 1

The courses required were in the areas of general special education, assessment, reading, mathematics, specific handicapping condition content areas, behavior management and practicum. These courses were designed to produce a teacher certified to function in public school settings with special education students.

To appraise learner performance, program objectives had to be defined in observable terms. All required course outlines were reviewed and potential course standards were specified. These course objectives focused upon the learner and could be observed in the classroom situation. When implementing these criteria many objectives of the training program could not be evaluated by measuring behavior change in children with whom practicum students worked. For example, one course outline specified a goal "To describe characteristics of a behavior modifier." Since this was not considered measurable by change in pupil behavior, it did not qualify as a potential learner referenced standard.

To illustrate the learner referenced model development, only three course areas and objectives were utilized: introduction to special education, methods and materials, and problems and trends in special education. Each course outline was reviewed to determine the objectives adaptable to learner performance. Two alternatives were considered for this process: choosing specific or general objectives. It was decided a wide range of items could be classified under a general objective, resulting in a reduction of the number of standards to 82 for the participating program and 23 for the core special education course work.

Stage 2

Entering Stage 2 the faculty considered the list of potential standards, divided into four major areas representative of the training program: assessment, methods, materials, and remediation. These objectives were distributed to the eight participating faculty members, who were asked to approve or change the statements.

The decision was to determine which standards were representative of the training program. Non-representative objectives were eliminated or revised; if revised, they were recycled to stage one. Representative objectives were retained for future evaluation. Following this procedure the final list was compiled into a checklist format (Appendix A).

The faculty was asked to rate each objective as to how well they thought students should be prepared. The median score of the faculty responses for each item became the teacher preparation program standard. A format that can be used to depict median values respective to university standards is located in Appendix B. Such a format represents the relative weightings assigned to various curricular areas.

Stage 3

Stage three was designed to collect learner referenced data from practicum sites. Cooperating teachers and directors of special education were contacted and the procedures for collecting data described.

Master's students were trained in the use of an individualized educational plan for the learner. The students were taught to use the format developed for gathering specific learner referenced data (Diagram 6). Each practicum student was to develop and submit ten educational plans during his practicum experience. A schedule was established to allow university supervisors time to review the plans for completeness and accuracy. Each week of the practicum the students submitted their plans, which were reviewed and returned the same day providing immediate feedback to the student. A noteable increase in proficiency was seen in the educational plans' quality as the training increased and students had an opportunity to use the plans in conjunction with their methods course prior to being assigned to full time practicum.

The student's early progress in developing educational plans illustrated several problems; the most common of which was the lack of specificity in educational assessment. For example educational assessment was reported by students as:

(1) "Example of classwork, observation and worksheets."

(2) "Informal teacher observation, inability to identify letters from a visual or auditory model, inability to read. Inability to identify letters on the Woodcock Work Identification Subtest"

(3) "Woodcock Reading, Key Math, Bender, IRI"

(4) "Systems Fore Informal Inventory"

These statements were written during the initial implementation stage, indicating the necessity to inform students the assessment information was incomplete and should be quantified using frequencies, normative data, time or percentages prior to specifying the learner's specific skill deficits. Once the educational assessment was sufficiently detailed, such as, "The child missed 31 of 40 pre-primer Dolch words" the practicum students continued to identify the child's deficit and establish desired outcome.

To identify the deficit and establish a desired outcome, the objectives had to be stated in curricular terms. If they were not, the practicum student was instructed to write specific curricular objectives for the learner. For example, using the above reference to Dolch words, the objective outlined for the learner was, "David will read orally fifteen Dolch list words in context with 80% recognition following two weeks of instruction." Also, this particular objective set a criterion measure for the desired outcome.

Instructional strategies was the next step in developing an educational plan. The practicum student considered methods, strategies and curricular materials to be used in remediating a deficit of the learner. Following through with the example for increasing the Dolch sight word vocabulary the materials chosen for this objective were plastic letters, flashcards, blackboard and chalk, paper and pencil. The methods chosen were to create words from plastic letters, write words on the blackboard, write words in simple sentences, write simple instruction, read words in stories, and flash card drills (Figure 1, 2, 3).

After the practicum student accomplished instructional planning the cooperating teacher and university supervisor reviewed the plan for its appropriateness and adequacy. If

INDIVIDUALIZED EDUCATIONAL PLAN

(1) Practicum Student's Name______________ (2) Child or Client's Name Bart
(One child/client only)

(3) Sex: [✓ M] F (4) Age 10 Grade 5

(5) **SPECIFIC SKILL DEFICIT** State one specific skill deficit for child/client	Child can not identify by name the following coins: nickel, dime, quarter, half-dollar.
(6) **MAJOR AREA** Check one or more areas	___Learning Process ___Motor ___Reading ___Self Concept _X_Math ___Language ___Other (Please specify)______________
(7) **EDUCATIONAL ASSESSMENT** Report skill deficit in measurable terms, i.e., frequency or time or % or test scores	Gart was unable to identify the coins without confusion as measured by teacher presentation of 25 picture cards - misnamed 16 cards.
(8) **METHOD** State specific method used in remediating specific skill deficit	Presentation of visual and oral stimulus in a 1 to 1 situation with the teacher 5 minutes per day for 5 school days.
(9) **MATERIAL** State specific material used in remediating specific skill deficit (if applicable)	Coins Worksheets
(10) **ANTICIPATED PERFORMANCE** State criterion (in measurable terms) for acceptable performance	Bart will be able to identify by naming the coins with 100% accuracy.
(11) **NARRATIVE** Write an educational objective in narrative form, using information from 2, 5, 7, 8, 9, & 10 above	Bart, who can not identify coins (nickel, dime, quarter, half-dollar) as measured by teacher observation, will be given visual & oral stimulation, using real coins and worksheets for 5 minutes for 5 school days, at which time he will be able to identify the coins with 100% accuracy.

Fill In and Complete After Intervention of Methods & Materials

(12) **ACTUAL PERFORMANCE** Report actual outcome in measurable terms, i.e., frequency or time or % or test scores	Bart correctly named (12) pennies, (8) nickels, (11) dimes, (8) quarters and (3) half-dollars. Bart misnamed a nickel, but when questioned further corrected himself.
(13) **CHANGES** If method and/or material are changed, please list rationale	

INDIVIDUALIZED EDUCATIONAL PLAN

(1) Practicum Student's Name ____________

(2) Child or Client's Name Matthew
(One child/client only)

(3) Sex: [✓ M] F

(4) Age 11 Grade 5

(5) SPECIFIC SKILL DEFICIT State one specific skill deficit for child/client	Matthew cannot respond if verbal task requires use of moe than 4 words.
(6) MAJOR AREA Check one or more areas	____ Learning Process ____ Motor ____ Reading _X_ Self Concept ____ Math _x_ Language ____ Other (Please specify) ____________
(7) EDUCATIONAL ASSESSMENT Report skill deficit in measurable terms, i.e., frequency or time or % or test scores	Given any task requiring verbal interaction Matthew cannot respond if the response requires over 4 words as observed by the teacher over a 10 day period.
(8) METHOD State specific method used in remediating specific skill deficit	Matthew will be asked to describe shapes for 10 days (1st simple requiring few words → requiring many words) to a person who cannot see the shape but must draw it based on the description. The describer checks the work of the drawer & must vary the description until the drawer perfects the shape.
(9) MATERIAL State specific material used in remediating specific skill deficit (if applicable)	Describer gets points for drawings done correctly. Pictures of simple shapes → pictures of more complex shapes with color.
(10) ANTICIPATED PERFORMANCE State criterion (in measurable terms) for acceptable performance	Matthew will respond with appropriate length of phrases in all tasks involving verbal interaction 100% of the time.
(11) NARRATIVE Write an educational objective in narrative form, using information from 2, 5, 7, 8, 9, & 10 above	Matthew who has difficulty responding in length in verbal interactions as measured by teacher observations, will be given the task of describing objects (for points) to another student for 10 days at which time he will respond with appropriate length of phrase to tasks involving verbal interaction 100% of the time.

Fill In and Complete **After** Intervention of Methods & Materials

(12) ACTUAL PERFORMANCE Report actual outcome in measurable terms, i.e., frequency or time or % or test scores	Following intervention procedures, Matthew responds in full sentences 80% of the time.
(13) CHANGES If method and/or material are changed, please list rationale	

INDIVIDUALIZED EDUCATIONAL PLAN

(1) Practicum Student's Name__________ (2) Child or Client's Name Jerry
(One child/client only)

(3) Sex: [✓ M] F (4) Age 11 Grade 5

(5) **SPECIFIC SKILL DEFICIT** State one specific skill deficit for child/client	Unable to retain sight word vocabularies.
(6) **MAJOR AREA** Check one or more areas	___ Learning Process ___ Motor X Reading X Self Concept ___ Math ___ Language ___ Other (Please specify) visual motor integration visual memory
(7) **EDUCATIONAL ASSESSMENT** Report skill deficit in measurable terms, i.e., frequency or time or % or test scores	Jerry's main problem in reading is that he does not retain a sight word vocabulary. He reads 2 years below his expectancy level. He reads words by word according to his classroom teacher, therefore slows down his reading speed and enjoyment.
(8) **METHOD** State specific method used in remediating specific skill deficit	VAK method for retaining visual memory of words. Neurological impress method for accurate reading. Flash card method for increasing sight word vocabularies. Phonic word attack method to reinforce his strength.
(9) **MATERIAL** State specific material used in remediating specific skill deficit (if applicable)	Flash cards of sight word vocabularies. The Mott Basic language skills program Book 160 Worksheets for spelling and word attack skills Low vocabulary high interest book "The Story of Helen Keller."
(10) **ANTICIPATED PERFORMANCE** State criterion (in measurable terms) for acceptable performance	Jerry will be able to recognize all the sight word vocabularies he has learned in 10 weeks period and will be able to do the given worksheets of phonic word attack skills with 80% correct.
(11) **NARRATIVE** Write an educational objective in narrative form, using information from 2, 5, 7, 8, 9, & 10 above	Jerry, who is unable to retain sight word vocabulary as measured by teacher observations, will be given visual and aural stimulation using flash cards for 20 minutes for 10 weeks school period, at which he will be able to retain all vocabularies with 100% correct. He is also able to do the given worksheets with 80% correct.

Fill In and Complete **After** Intervention of Methods & Materials

(12) **ACTUAL PERFORMANCE** Report actual outcome in measurable terms, i.e., frequency or time or % or test scores	He is able to say sight word vocabularies with 100% correct. He is able to finish given worksheets with 80% correct.
(13) **CHANGES** If method and/or material are changed, please list rationale	

the plan needed revision it was returned to the practicum student with suggestions. If the instructional plan was adequate, it was implemented for a specified time or until the practicum student decided the learner had mastered the skill. The learner was administered a criterion test for the objective and the results were reported: for example, "In a story containing fifteen Dolch words studied David orally read 100% of them correctly." Upon completion of instruction the individualized educational plan was then returned to the training institution for data analysis.

Stage 4

The ratings of university standards and the individualized plans generated data used for analysis in Stage 4. Tabulating the data from the individual plans involved matching the specific deficit from the plan with the general objective of the training program. For example, a specific skill deficit was "child cannot spell correctly words when she had to add a suffix to a known root word." This specific deficit was matched with the general training program objective of "remediate deficits of spelling." The matching was accomplished by training program personnel familiar with the objectives of the training program.

Upon completion of the matching procedure the analysis of behavior change compared anticipated outcome with the actual outcome on the individualized educational plan. This was a binary choice, i.e., the anticipated outcome was either met or not met. No allowance was made for change in behavior when it did not equal the anticipated outcome. For example, if the anticipated outcome was to have the child attain a 100% accuracy on teacher-made math test and the child attained a 99% on the test this was considered as an instance where the performance did not meet the anticipated outcome. The format used to match specific deficit on the IEP with standards (general objectives) of the program and reporting percentage of students able to remediate specific skill deficits on university standard is depicted in Appendix B. Such information reported at this stage is to be used at Stage 6.

The individualized educational plans were used for several purposes. They were initially a source of external validation for the training program standards by comparing objectives with standards and recording behavior change.

Another utilization of the individualized educational plan was a review of the plan's components such as the educational assessment, methods and materials areas. This review provided a detailed picture of the procedures and methods incorporated by the practicum students. Program components were matched to the IEP's to determine which aspects of the training program were used in the practicum setting. For example, the review of the educational assessment area showed the majority of the evalution consisted of informal and teacher made assessment tools. The training program however placed the major emphasis on formal assessment tools. This information was considered by the faculty and field practitioners for changing the training program. Another example for the use of the IEP's occurrd during the first quarter of their use. Practicum students were required to complete the behavioral objective section (Narrative F, Diagram 6). It was obvious this portion presented difficulty to the students. As a consequence the methods course was revised to place increased emphasis on the writing and implementation of behavior objectives.

The IEP's information provided for examination of training program components as well as methods, procedures, and objectives of public school settings. This was one source of an external validation of training program objectives and standards.

The implementation of the learner referenced evaluation model progressed to this stage. The remaining stages have yet to be accomplished. Numerous difficulties were encountered necessitating procedural and conceptual changes. Unanswered questions were raised concerning evaluation of the model and its components. The following chapter deals with some of these.

From the efforts of the past year it appeared feasible to collect and use learner referenced data on a limited basis for evaluating a teacher training program. Such an evaluation procedure provides external sources of information to the training institution to consider improving the mission of the training program. These data should be used with caution and only as one source of input to program decision makers.

The Model in Retrospect: Advantages and Potential Modifications

The learner referenced evaluation model was designed to provide field based information to university decision makers for legitimizing and improving the teacher training program. However, learner referenced data at best, may be used in a descriptive or correlational context as contrasted to a predictive framework. Such descriptive data represents a measure of relationships between the trainee's instructional skills and behavior changes of the recipients of such instruction, the learners. Thus, no causality is inferred between practicum students' teaching skills and behavior changes demonstrated by children receiving instruction.

Program benefits have emerged tangential to the accumulation of emparical learner referenced data. When viewed from an historical perspective, such by-products as increased faculty awareness of course competencies and improved communication between public school and university personnel can be attributed to project efforts to design and develop a learner referenced evaluation model. Empirical data is clouded by a host of intervening variables. However, increased subjective feedback to university faculty regarding program elements seems to be a built-in advantage of model development. Quite possibly, this "extraneous" input is at least as valuable as the empirical data.

As one considers these evolutionary characteristics of model development, it can be seen how program inputs change. More specifically, certain types of information have greater validity at some stages of model development than at others. For example, where a faculty is committed at stages 1 and 2 to generating a realistic list of course competencies, such efforts alone have initiated program changes. Field representatives, and supervising teachers' comments during project training sessions have also had impact on university components.

In terms of input to the preparation program then, viable benefits have arisen from the development and institution of a learner referenced model. Following are some examples of these advantages to the faculty, to the public school, and to practicum students involved in this evaluation project.

Advantages to Faculty

Being a traditional program, a faculty commitment was required to generate course competencies. This extraction of competencies from general course outlines often provoked questions among faculty about the feasibility of including certain objectives. Furthermore, the review of course outlines often pointed to the need for course adjustments. This process encouraged faculty to be more definitive concerning the expections of students.

Secondly, the faculty became more cognizant of process vs. product outcomes in their own teaching. Answering questions on a test regarding methods of child behavior change, for example, is a skill often removed from the actual implementation of that method to elicit behavior change. Looking at Learner-referened data dramatizes this distinction. In addition, a student's inability to implement certain competencies may result from inadequate theoretical background and/or inadequate preparation in a specific competency. Hence issues of theory vs. practical application are also given attention.

Finally, the project staff provided a communication link whereby information could be transmitted between university faculty and public school personnel enabling faculty to stay abreast of field developments.

Advantages to Public Schools

The project staff provides a communication link between public schools and the university. During project training sessions and other field contacts, subjective reports made by public school personnel are recorded and shared for later presentation to university faculty. Through training in IEP format, cooperating teachers are made more aware of university expectations of students and requirements of P.L. 94-142.

Advantages to Students

By incorporating aspects of P.L. 94-142 in the project's IEP format, and providing training in IEP usage, practicum students' perceptions of legal requirements is sharpened. Additional benefits of using IEP format are that it improves accountability through accurate record keeping and provides a systematic method for approaching client problems. Communication between student's and supervising teachers is often enhanced.

In summary, developmental characteristics of model inauguration have been found to generate program feedback, which suppliments learner-referenced data by increasing the quantity and variety of information on which to base decisions. Model development has increased awareness of the numerous intervening variables inherent in any type of evaluation effort. This outcome allows some optimism for increased validity of learner-referenced data.

While caution must be exercised in the interpretation of learner referenced data, the great increase in program feedback as a result of model development can be viewed as a very positive outcome of the project. Further refinements in methodology can be expected. As a more refined procedure is developed to handle subjective reports, and as validity of learner referenced data improves, one can expect the learner referenced model to become an alternative in program evaluation.

Potential Modifications

Stage 1

Stage 1 (Potential Learner Referenced Standards) presented some problems related to time, and cooperation of university and public school personnel. One problem encountered with Stage 1 was the amount of staff time involved in extracting potential learner referenced standards. This may be a problem initiating a learner referenced evaluation model. Another problem which may be encountered is the university establishing communication with public school personnel. University personnel appears to be reluctant to include public school personnel in planning and developing teacher-education programs. In many instances public school personnel are not consulted by the university in determining what skills should be taught by the training institution. A resulting lack of interface between field practitioners and university personnel could seriously impede the training of students with skills needed in the field; also such an attitude may tend to polarize the two groups who purportedly had a similar goal--effective instruction of children. It is important to remember the focus of the general objectives is on what the learner was to do, i.e., product vs. process.

It is strongly recommended that university personnel devise and implement a plan to contact and make use of field practitioners' expertise in establishing teacher training program standards. This process enables teacher training planners to externally validate their standards by obtaining information from field practitioners. Accordingly the standards of the training institution acquires a higher probability of representing applicable obejctives for use in public school setting.

A major advantage that could arise in implementing this model would be the understanding that could grow between faculty and external personnel. The understanding is more likely to occur since potential learner referenced standards (general objectives) are stated in empirically verifiable terms that focus on what the learner is to do. The output of this stage however could only be as good as the clarity of specified objectives. Another advantage of Stage 1 is its general applicability to training institutions with a variety of programs ranging from traditional to competency based.

Stage 2

At Stage 2 (Representative Learner Referenced Standards) university faculty members were able to provide input in determining what potential learner referenced standards were representative of the training program. The primary problems associated with this stage included the vagueness of the term "representative" and the arbitrary assignment of criterion values to a standard or general objective. The concept of representative learner reference standards needed to be further specified for faculty members to understand the common referent points. The assignment of criterion values was arbitrary with high or low ratings representing relative weightings of skills as contrasted to a predictive framework. Criterion values placed upon standards to weight their importance in relation to other standards were not predictors of trainee's success with children in an instructional setting.

Stage 3

Stage 3 (Field Testing Learner Referenced Standards) presented several problems to model implementers respective to: specificity, objectivity, measurement and monitoring. An initial problem was obtaining specific and measurable behavioral objectives for learners. In many instances, the objectives were global and did not present specific skills or tasks for learner's needs. For example, some objectives were stated as follows: "Remediate language problem of the learner." To minimize the problem of poorly conceived and written objectives, it was suggested that students be trained to write objectives prior to the practicum experience, perhaps as part of a curriculum development course.

Another problem encountered in some instances at this stage was the unsystematic monitoring of writing individual educational plans (IEP) by cooperating teachers and university personnel. Lack of monitoring procedures reduced the probability that the objectives for the learner were relevant and valid for the students' educational needs. The initial pilot testing of the learner referenced evaluation model resulted in recommendations to improve the quality of information obtained from individualized educational plans. Initially in developing a child's IEP, the university supervisor and cooperating teacher verified that educational assessment information administered by the practicum student was as accurate as possible.

When objectives are specified for the child, the cooperating teacher and the supervisor judge the appropriateness of the objectives in terms of specific skill deficits of the learner. The practicum student may choose objectives comfortable to him in the instructional process. Also, the supervisor and cooperating teacher monitor objectives for specificity and to insure appropriate criterion measures. Such procedures increase the probability that the practicum students are selecting relevant objectives and setting realistic criterion measures for the learners. The absence of such monitoring procedures might result in a chance process.

When a practicum student plans an instructional intervention the cooperating teacher and supervisor must monitor the appropriateness of the selection of strategies, methods, and materials. Such control is needed to assure realistic educational planning. The actual instructional process must be monitored by the cooperating teacher.

As a result of these quality control procedures, the learner responses obtained from the instructional process have a greater probability of being valid measures of the practicum student's ability to implement an instructional program with children. It should be noted that such measures are to be used from a descriptive framework as contrasted to causality or predictive framework. A primary advantage of writing behavioral objectives in an individualized plan format is to provide documentation of teacher candidates' effects on children. Such information may be utilized to document the effects of the teacher training program for federal, state, and local legislators, satisfying accountability criteria respective to learners.

Stage 4

Stage 4 (Analysis of Learner Referenced Data) is at present restricted to the use of binary data in describing the effectiveness of practicum students. Either the practicum student achieved or did not achieve the anticipated behavioral change with the learner as stated in anticipated performance measures. Such data do not address the issue of the quality of instruction provided to the learner. The categorization of data by congruency of anticipated and actual performance (Store 3) and actual performance below anticipated performance is valid only to the extent quality control measures were imposed on developing an IEP in Stage 3.

However, it is suggested that cooperating teachers and university supervisors actively monitor the writing of IEP's. Such procedures increase the probability that learner referenced data is representative and reliable. Finally, matching objectives with university standards is a judgmental process by university faculty establishing a common referrent and criteria for categorizing objectives as either representative or non-representative of the training program.

Stage 5

At Stage 5 (Validation of University Standards) the use of field practitioners, and coordinators provides the training institution with external personnel to judge the applicability of the standards with associated learner referent objectives from an external face validity framework. Such input promotes interface between the public schools and the teacher training institution.

The primary problem associated with this stage is the concept of "classroom applicability" lends itself to multiple interpretations. This concept must be operationalized so personnel external to the training institution and university faculty have common referent to judge such objectives for classroom applicability. Thus, such a procedure promotes understanding between the university training program and users of the university products.

Stage 6

At Stage 6 (Discrepancy Evaluation) the primary problem encountered is sorting standards in terms of willingness to tolerate the discrepancy. More specifically, a significant methodological problem is the equating of median scores for university standards with percent of practicum students able to implement learner change on instructional skill areas. Faculty must determine what median scores and associated learner referenced data constitute tolerable and intolerable discrepancies. A suggested methodological change is for university faculty to set criterion for university standards in terms of anticipated percentage of students able to implement change in various curricular skill areas as contrasted to median scores obtained from introspective rating of such curricular areas. For example, the faculty may view a standard as intolerable if less than 65 percent of the practicum students are able to remediate written language deficits.

Stage 7

At Stage 7 (Generation of Strategies for Resolving Discrepancies) the primary advantage was having the faculty members define and generate consensus based upon their own criteria. Such flexibility allows for variation between training institutions.

Stage 8

At Stage 8 (Feasibility of Adjustments) it is imperitive that university administrators identify actual constraints in applying adjustments to training program. If internal and external constraints are not identified, the adjustments may not be feasible to implement and thus the process is of limited utility.

Stage 9

At Stage 9 (Adjustments Made in the Training Program) the effects of such changes are largely based upon the premise of valid and accurate information from previous stages. If that information is inaccurate, the adjustments may result in providing a solution where no problem exists.

Stage 10

At Stage 10 (Field Testing Adjustments Made in the Training Program) is a recycling of the model beginning at Stage 3. Thus the Learner Referenced Model is designed to constantly evaluate and improve the training program via a recycling process. Such a model provides the institution with continual information from both external and internal sources to validate and improve a training program. The processes used in the model were designed to promote diversified input into program planning and development at the university level. However, the model is descriptive rather than predictive in nature. That is, the model identified major components and subcomponents related to using learner referenced data as one form of information to be used in the decision making process to validate and improve teacher training programs. The model is not designed to identify elements and processes related to effective teachers.

APPENDIX A

REMEDIATION

Learning Processes:	No Preparation	Little Preparation 1	Average Preparation 2	Above Average Preparation 3	Excellent Preparation 4	5
1. Remediate deficits of visual perception						
2. Remediate deficits of auditory perception						
3. Remediate deficits of tactile-kinesthetic perception						
4. Remediate deficits of attention						
5. Remediate deficits of auditory discrimination						
6. Remediate deficits of visual discrimination						
7. Remediate deficits of sequencing						
8. Remediate deficits of symbolization						
9. Remediate deficits of memory						
10. Remediate deficits of conceptualization						

Motor:

11. Remediate gross motor disabilities						
12. Remediate fine motor disabilities						

REMEDIATION

Language:		No Preparation 1	Little Preparation 2	Average Preparation 3	Above Average Preparation 4	Excellent Preparation 5
13. Remediate spoken language disorders						
14. Remediate written language disabilities						
15. Remediate spelling disabilities						
16. Remediate reading problems associated with language disorders						

Math:

17. Remediate deficits in math readiness skills						
18. Remediate computational skill deficits						
19. Remediate problem solving deficits						

Reading:

20. Effect change in reading readiness skills						
21. Effect change in sight vocabulary						
22. Effect change in word analysis skills						
23. Effect change in use of context clues						
24. Effect change in comprehension						

REMEDIATION

	No Preparation 1	Little Preparation 2	Average Preparation 3	Above Average Preparation 4	Excellent Preparation 5	
25. Effect change in fluency						
26. Effect change in rate						
27. Effect change in study skills						

Affective Domain:

28. Improve the child's self-concept						

Please provide any comments you feel that are relevant to the remediation area in your setting and the U.N.C. training program.

APPENDIX B

REMEDIATION

	LEARNER CHANGE			FACULTY RATING OF STANDARD
	FREQUENCIES			
Learning Processes:	Yes	No	%	Median
1. Remediate deficits of visual perception	2	3	40	3.8
2. Remediate deficits of auditory perception	1		100	4.2
3. Remediate deficits of tactile-kinesthetic perception				4.0
4. Remediate deficits of attention	6	1	86	4.2
5. Remediate deficits of auditory discrimination	2		100	4.2
6. Remediate deficits of visual discrimination	2	1	67	4.2
7. Remediate deficits of sequencing	3	2	60	4.5
8. Remediate deficits of symbolization				4.5
9. Remediate deficits of memory	3	3	50	4.7
10. Remddiate deficits of conceptualization		1	0	4.7

Motor:

11. Remediate gross motor disabilities	2		100	3.8
12. Remediate fine motor disabilities	15	4	80	3.5

REMEDIATION

	LEARNER CHANGE			FACULTY RATING OF STANDARD
	FREQUENCIES			
Language:	Yes	No	%	Median
13. Remediate spoken language disorders	5	2	71	4.0
14. Remediate written language disabilities	6	1	86	4.7
15. Remediate spelling disabilities	18		100	4.5
16. Remediate reading problems associated with language disorders	3		100	4.7

Math:

17. Remediate deficits in math readiness skills	4		100	4.3
18. Remediate computational skill deficits	25	13	66	4.5
19. Remediate problem solving deficits	1		100	4.5

Reading:

20. Effect change in reading readiness skills	7	1	87	4.3
21. Effect change in sight vocabulary	4	5	44	4.3
22. Effect change in word analysis skills	6		100	4.7
23. Effect change in use of context clues				4.5
24. Effect change in comprehension	2	1	67	4.5

REMEDIATION

	LEARNER CHANGE			FACULTY RATING OF STANDARD
	FREQUENCIES			
	Yes	No	%	Median
25. Effect change in fluency	1	3	25	4.5
26. Effect change in rate	0	2	0	4.2
27. Effect change in study skills	1	1	50	4.3

Affective Domain:

28. Imrpove the child's self-concept	4	5	44	4.7

APPENDIX C

Phase II Data Collection
Speech/Language Pathology

John A Gruenloh Ed. D.

Overview

The need for evaluation of teacher preparation programs has produced an increased emphasis in evaluation models and techniques in recent years. The main concern seems to be gathering objective data about teachers and preparation programs for use in making program decisions for validating and revising university training programs. One evaluation concept receiving much attention in the literature was the use of learner outcome data to evaluate the training program and teacher performance. The objective is to determine if the graduate of a teacher preparation program can effect behavior change in the student he teaches. Lessinger (1973) spoke to this concern, "When a student is able to demonstrate in concrete terms what he has or has not learned, education will be in a better position to judge where or why a program succeeds or fails and make the necessary changes to achieve success."

Typically the evaluation of teacher education programs and teachers has concerned itself with the process variables. A typical process evaluation reviews procedures to be accomplished by the teacher, methods to be used in the instructional process, recording teacher behaviors, or analyzing the teaching act. Competency based teacher education (CBTE) programs strive to provide the teacher candidate with skills purportedly related to effective teaching. Specific teacher skills and behaviors are identified and must be mastered during the training program before the student can advance to the next instructional set. Accomplishment of these objectives is thought to produce a more effective teacher. Evaluation of this program is usually a process evaluation of preparing teachers, i.e., have the candidates mastered the processes of teaching?

A second category of evaluation of teacher preparation programs concerns itself with the measurement of pupil achievement, growth, or outcomes. Those who advocate this type of product evaluation have concluded that process criteria are not sufficient to generate data required to predict teacher competence. This position represents the utilization of pupil data to assess teacher competence within a teacher education setting.

A third evaluation model uses process and product. This model considers both the process of teaching and the student outcomes. The theoretical concern is identification of teacher skills which produce pupil gains or outcomes. While this rationale appears logical; it is laden with conflicting viewpoints and procedural difficulties.

A learner reference evaluation model has been applied to the Department of Speech/Language Pathology during the 1976-1977 academic year. During the 1976-1977 academic year the feasibility of the model in terms of data collection have been tested. This process involved contacting and requesting interns and student teachers in the Department of Speech/Language Pathology to collect data on learner growth as a result of some therapeutic technique. Each intern and student teacher completed specifically developed forms on clients with whom they held therapy. See Appendix A for the instructions and forms given to each intern and student teacher.

Results

The data collected during the 1976-1977 academic year is summarized in Appendix B. It must be remembered that the data in Appendix B is a result of eight interns and student teachers collecting data. With such a small N few inferences or judgments can be drawn from the data. It is the purpose of this report to identify some possible trends in the data collected thus far.

Language

Within the area of language, the competency for implementing interventional language therapy was chosen most often. This was probably the result of a number of factors. The competency is stated in such general terms that it was used as a "catch-all" phrase when a disorder could not be classified under another competency. Another explanation may be related to the ages of many of the clients. Most adults with language disorders, especially aphasia, could not be classified under any other approach. The interns and student teachers using this competency had a success rate with clients 44% of the time.

The remaining three competencies under the category of language were chosen infrequently and any inferences drawn from that data should be guarded. In fact, the competencies of improving auditory processing skills and implementing therapy for acoustically handicapped children were never used by an intern or student teacher during the 1976-1977 academic year.

Articulation

The most frequently used competency within the area of articulation was VanRiper's approach. It was selected for use with nineteen clients, with the interns and student teachers experiencing positive change in clients 68% of the time. The Moto-Kinesthetic approach to articulation therapy was used on eight occasions with 63% success with clients. Six interns chose the competency of monitoring articulation therapy outside the classroom. They were successful in 66% of the cases.

Voice and Stuttering

The data collected in the competency area of voice and stuttering was very scanty. It is most likely too early in the evaluation process to draw inferences of training effectiveness within these two competency areas. Probably, because of the low incidence of voice and stuttering disorders, two or three years of data collection will be necessary before adequate inferences could be drawn regarding training program effectiveness.

Assessment Tools

Interns and student teachers selected a variety of instruments for the assessment of speech and language functions of clients with whom they worked. It would be important to measure the frequency of use of these instruments to urge their importance in the field and whether the Speech/ Language program are, in fact, teaching the test to their students. At present, no effort has been made to record the extent to which each test was used, however, some instruments were used more frequently than others. Informal testing, primarily observation, was used more frequently than any one standardized instrument. Informal testing was applied in those instances where stuttering and voice disorders were the primary problem.

The Porch Index of Communicative Ability (PICA) and Schuell tests of aphasia were the tools used primarily in judging the language abilities of that population. The PICA was used more often than the Schuell. This was probably the result of the internship site and not a choice of the training program or intern. That is, more interns were placed in a site which used the PICA as the standard instrument for assessing the abilities of aphasic patient, and was not necessarily the preference of the intern. In instances where articulatory abilities of clients were assessed, the Templin Darley test of Articulation was used more often than any other test of articulation.

Following is a list of tests used by interns and student teachers during the 1976-1977 academic year.

1. Informal testing
2. Schuell Test of Aphasia
3. Spalding Rehabilitation Center Development Scale
4. Peabody Picture Vocabulary Test (PPVT)
5. Fisher-Jogeman Test of Articulation
6. Boehm Test of Basic Concepts
7. Distar Language Test
8. Detroit Tests of Learning Aptitude
9. Goldman-Fristoe-Woodcock Test of Auditory Discrimination
10. Wepman Test of Auditory Discrimination
11. Illinois Test of Psycholinguistic abilities
12. Templin-Darley Test of Articulation
13. Northwestern Syntax Screening Test
14. Lindamood Auditory Discrimination Test
15. Carrow Elicited Language Inventory
16. Tikofsky Word Lists
17. Porch Index of Communicative Ability (PICA)

Interns' and Student Teachers' Self Report of the Training Program

The interns and student teachers were interviewed regarding the effectiveness of the training program in preparing them to work with speech/language handicapped children or adults. Positive, as well as, negative comments were collected from the interns and student teachers. They felt the training program was particularly beneficial to them in the areas of articulation, voice, and stuttering. Most of the statements generated by the students in the areas of voice and stuttering focused on the competencies of the instructors teaching those courses. They felt the instructors were very well prepared and qualified in the areas of voice and stuttering.

Another strength of the program, as viewed by the students, is the faculties' encouragement to elicit feedback about the program from the students. A number of interns and student teachers stated that department faculty have talked to them about strengths and weaknesses of the program. The students were told that information obtained from them would be used for program development and improvement.

Various negative comments were collected from students regarding training program effectiveness. The students were concerned about the lack of supervision they received in the university clinic. They felt their therapy sessions were not observed frequently, and little time was avialable to discuss their therapy sessions with the faculty. Another frequently encountered criticism of the university clinic related to the variety of clients seen for therapy. Most interns stated they were not given the experience of working with a variety of clients with different types of speech and language problems. Most interns going into an internship or student teaching situation have worked only with articulation cases, and have had little experience with language, voice and stuttering clients.

The interns and student teachers reported that the weakest area of the program was in language, particularly in the area of aphasia. Apparently the program at one time focused on one approach to the diagnosis and treatment of aphasia, and that approach most often was not used in the internship site where students were placed. This situation has been corrected with the addition of another orientation to aphasia. However, the institution on that orientation focuses primarily on the diagnosis of aphasia disorders while limited instruction focuses on the treatment or methodological aspects of aphasia. The same criticism was voiced related to the diagnosis and treatment of language disorders in children. That is, too much emphasis was placed on diagnosis, and little information was given relevant to treatment of language disorders.

Another criticism of the training program is related to the variety of speech and language disorders encountered during the internship experience. In some instances, interns work with only one type of client during the entire internship. This was especially true in internship sites such as the Veterans Administration Hospital and Craig Rehabilitation Hospital where the primary type of patient was aphasic.

ATTACHMENT 1

The University of Northern Colorado

GREELEY, COLORADO 80639

College of Education
School of Special Education and Rehabilitation
303/351-2691

The School of Special Education and Rehabilitation at the University of Northern Colorado in Greeley is in the process of designing a model whereby it can better assess its various training programs. Presently this process involves the establishment of a method to collect data on the progress clients make as a result of a therapist using various interventions to meet certain problems a client might have.

These data are not going to be used to evaluate either the client, the teacher or therapist, the interventions, or the school's programs. The data are going to be used to evaluate our ability to collect the data in the field. As a consequence neither the client, teacher or therapist, or the school will be identified or associated with the data in any way.

We sincerely appreciate your cooperation and anything we can do to respond to questions you might have about our efforts will be attended to immediately. For such information, contact:

Eric W. Blackhurst or
John A. Gruenloh
School of Special Education
and Rehabilitation
University of Northern Colorado
Greeley, Colorado 80631
(303) 351-2691

Sincerely,

Dr. William S. Wright,
Associate Director
School of Special Education
and Rehabilitation

CLIENT REFERENCED EVALUATION OF THE SPEECH AND LANGUAGE PATHOLOGY PREPARATION PROGRAM

1. Purpose:

This project is designed to measure the effectiveness of U.N.C.'s teacher preparation program in the School of Special Education and Rehabilitation. This effectiveness will be measured by behavior change in clients.

2. Scope:

Interns, student teachers, and cooperating teachers are asked to participate in this project for the duration of the internship or student teaching experience.

3. Evaluation:

The project is designed to provide information on the effectiveness of the teacher training program. This is not a project designed to evaluate the intern, student teacher, supervisor, or the client in the therapy setting. This project in no way effects grades of the intern or student teacher. No client or personnel will be identified in the results of this project.

4. Procedures:

a. You will be provided with a list of statements generated from university faculty. The supervisor, intern, or student teacher will be asked to select the statements appropriate to their setting and clients.

b. You will be given an individual educational plan to use with each statement for each client. Please fill these out and keep them for the duration of the internship or student teaching experience.

Note: This is consistent with Public Law 94-142 which requires an individualized prescriptive program for each handicapped child

c. At the conclusion of the internship or student teaching you will be interviewed to determine your feelings concerning the project and the teacher training program you are completing.

6. Cautions:

   This is not an evaluation of you. This project is designed as an initial attempt to evaluate the teacher training program in terms of behavior change in children.

7. Assistance:

   If at any time you are in need of assistance or have questions concerning this project please contact Nels C. Sorensen or John A. Gruenloh (Client Referenced Evaluation Project Staff) at 351-2691.

Thank you for you help.

INSTRUCTIONS

Fill In and Complete Before Intervention

1. Please fill in your name in the upper left hand corner of the Behavioral Objective Format.

2. Please fill in the client's name (only one client per form).

3. Please circle the sex of the client.

4. Please list the age of the client, and grade placement if applicable.

5. Fill in client's complete speech/language disorder. For example: articulation disorder of distortion on the (r, s), substitution of (t/k) in all positions of words. Language delay of 2 years below C.A.

6. Write an objective regarding the specific speech/language disorder with which you will work.

7. Please fill in the pretest data on the client.

8. Please list the specific intervention to be used with the client. Specify the competency, methods, materials and activities.

9. Please list the minimum anticipated outcomes the client is expected to achieve. This is to be stated in measurable terms.

Fill In and Complete After Intervention

10. List the actual level of proficiency achieved by the client stated in measurable terms.

11. If a specific strategy material or method was changed, list such changes and the rationale for making the changes.

INDIVIDUALIZED EDUCATIONAL PLAN

1) Practicum Student's Name Marsha K.

(2) Child or Client's Name Ben

(3) Sex: [✓ M] F

(4) Age 7 Grade 2

(5) COMPLETE DISORDER(S) State child or client's complete speech/language disorder(s)	Articulation: Distortion of (r,s) sound in all positions of words. Substitution of (w/l) in all positions of words. Language: Two-year delay in receptive and expressive language.
(6) OBJECTIVE State specifically the disorder you will address	Ben will be able to produce the (r) sound in the initial position of words with 10 of 10 correct responses over three trials in the therapy situation.
(7) PRETEST DATA Include specific data related to the objective and instruments used, both formal and informal.	Goldman-Fristoe Test of Articulation revealed distortion of (r,s) and substitution of (w/l). Slingerland and Utah tests of Language revealed a two year delay in receptive and expressive language.
(8) INTERVENTION State: 1. The competency from the list provided 2. Methods, materials, activities 3. Period of time	1.a. Conduct VanRiper's approach b. Conduct MacDonald's approach 2.a. Peabody Articulation Kit, Go Mo Cards b. Teacher made games 3. Six weeks
(9) ANTICIPATED OUTCOME State criterion (in measurable terms) for acceptable performance.	
(10) ACTUAL PERFORMANCE Report actual outcome, i.e., frequency, time, percent, or test scores.	
11) CHANGES IN INTERVENTION And/or comments regarding child or client's performance.	

COMPETENCY STATEMENTS

Language Disorders

1. Conduct a therapeutic program for language disorders:

   A. Provide therapy to develop and/or improve auditory processing skills.
   B. Implement interventional language therapy for minority children from culturally different backgrounds
   C. Implement interventional language therapy.
   D. Implement therapy for acoustically handicapped children.

Articulation

2. Conduct a therapeutic program for articulation disorders:

   A. Conduct Van Riper's approach in therapy.
   B. Conduct MacDonald's approach in therapy.
   C. Apply appropriate elements of the Moto-Kinesthetic approach in therapy.
   D. Conduct programmed approaches in therapy, eg. Maurer, Ryan (Monterey Programs).
   E. Monitor the articulation performance outside the classroom.
   F. Modify auditory perceptual deficiencies in children with articulation disorders.

Voice

3. Conduct a therapeutic program for voice disorders:

   A. Conduct remediation for clients with phonation and resonance disorders using Boone's 20 facilitating techniques.
   B. Conduct remediation for clients with phonation and resonance disorders using psychologically based approaches.
   C. Conduct remediation for clients with phonation and resonance disorders.
   D. Conduct rehabilitation procedures for laryngectomized clients, including esophageal speech, electronic devices, counseling, etc.

Stuttering

4. Conduct a therapeutic program for stuttering:

A. Conduct Van Riper's approach: (1) motivation, (2) identification, (3) desensitization, (4) modification, (5) stabilization.
B. Conduct Brutten and Shoemaker's approach.
C. Conduct programs to modify environmental influences on fluency.
. Teach the client to relax using Jacobsen's progressive relaxation procedures.
E. Elicit normally fluent speech in the therapy situation using Wolpe's systematic desensitization procedures.
F. Monitor the effects of systematic desensitization and other fluency-producing procedures in everyday speaking situations.

INDIVIDUALIZED EDUCATIONAL PLAN

1) Practicum Student's Name________________ (2) Child or Client's Name__________________

(3) Sex: M F

(4) Age_____ Grade_____

(5) COMPLETE DISORDER(S) State child or client's complete speech/language disorder(s)	
(6) OBJECTIVE State specifically the disorder you will address	
(7) PRETEST DATA Include specific data related to the objective and instruments used, both formal and informal.	
(8) INTERVENTION State: 1. The competency from the list provided 2. Methods, materials, activities 3. Period of time	
(9) ANTICIPATED OUTCOME State criterion (in measurable terms) for acceptable performance.	

(10) ACTUAL PERFORMANCE Report actual outcome, i.e., frequency, time, percent, or test scores.	
11) CHANGES IN INTERVENTION And/or comments regarding child or client's performance.	

ATTACHMENT 2

Voice	Learner Change Frequency			Faculty Rating of Standard
	Yes	No	%	Median
1. Conduct remediation for clients with phonation and resonance disorders using Boone's 20 facilitating techniques.		1	0	5
2. Conduct remediation for clients with phonation and resonance disorders using psychologically based approaches.				4
3. Conduct remediation for clients with phonation and resonance disorders.				5
4. Conduct rehabilitation procedures for laryngetomized clients, including esophageal speech, electronic devices, counseling.	3		100	3

Stuttering

1. Conduct Van Riper's approach: (1) motivation, (2) identification, (3) desensitization, (4) modification, (5) stabilization.				4
2. Conduct Brutten and Shoemaker's approach.	2		100	5
3. Conduct programs to modify environmental influences on fluency.	1		100	4
4. Teach the client to relax using Jacobsen's progressive relaxation procedures.	2		100	4
5. Elicit normally fluent speech in the therapy situation using Wolpe's systematic desensitization procedures.	1		100	4
6. Monitor the effects of systematic desensitization and other fluency-producing procedures in everyday speaking situations.	1		100	4

Language Disorders	Learner Change Frequency			Faculty Rating of Standard
	Yes	No	%	Median
1. Provide therapy to develop and/or improve auditory processing skills.				4
2. Implement interventional language therapy for minority children from culturally different backgrounds.	2	1	66	4
3. Implement interventional language therapy.	12	15	44	4
4. Implement therapy for acoustically handicapped children.				3

Articulation				
1. Conduct Van Riper's approach in therapy.	13	6	68	5
2. Conduct MacDonald's approach in therapy.				4
3. Apply appropriate elements of the Moto-Kinesthetic approach in therapy.	5	3	63	4
4. Conduct programmed approaches in therapy eg. Mowrer, Ryan (Monterey Programs).				3
5. Monitor the articulation performance outside the classroom.	4	2	66	4
6. Modify auditory perceptual deficiencies in children with articulation disorders.			100	4

APPENDIX D

Phase II Data Collection:

Learning Disabilities

Albert A. Stramiello

PHASE II DATA COLLECTION

LEARNING DISABILITIES DEPARTMENT

Introduction

As per the "1976 Proposal for the University of Northern Colorado Child-Referenced evaluation Model," Phase II of the project called for the collection of child-referenced data during the Winter and Spring Quarters of 1977. The information compiled was obtained from public schools and clinical settings using practicum students from the Learning Disabilities Department.

The information contained in this section is an initial analysis of the data compiled from 491 Individualized Educational Plans completed by practicum students during Phase II. The data has been categorized into the seven Major competency Areas: Learning Process, Self-Concept, Motor, Mathematics, Reading, Language, and Other.

Each of the Major Competency Areas is further delineated into component areas: (1) Assessments - formal; informal; (2) Materials - teachermade, commercial, both, none; (3) Behavior Management - not utilized, utilized; (4) Learner Change - achieved, not achieved. The following matrixes reflect the information compiled; they are followed by a list of initial observations drawn from the data.

Key for the Following Forms

N:	Number of Individualized Educational Plans accomplished for Winter and Spring Quarters, 1977 in the major areas listed.
Assessment:	Number of plans using formal and informal assessment.
Materials:	Number of plans indicating usage of teacher made materials, commercial materials, both or none.
Behavior Management:	Number of plans utilizing behavior management techniques.
Learner Change:	Number of plans where the actual performance matched or exceeded the anticipated performance.

Learning Progress

	Winter	Spring	Total	% Total
N =	16	22	38	8%
Assessment				
Formal	1	4	5	13%
Informal	15	18	33	87%
Materials				
Teachermade	9	9	18	47%
Commercial	5	11	16	42%
Both	2	1	3	8%
None	0	1	1	3%
Behavior Management				
Yes	2	2	4	11%
No	14	20	34	89%
Learner Change				
Yes	12	13	25	66%
No	3	5	8	21%
N/A	1	4	5	13%

Self-Concept

	Winter	Spring =	Total	% Total
N =	12	2	14	3%
Assessment				
Formal	0	1	1	7%
Informal	12	1	13	93%
Materials				
Teachermade	7	1	8	57%
Commercial	1	1	2	14%
Both	1	0	1	7%
None	3	0	3	22%
Behavior Management				
Yes	2	0	2	14%
No	10	2	12	86%
Learner Change				
Yes	5	2	7	50%
No	5	0	5	36%
N/A	2	0	2	14%

Motor

	Winter	Spring =	Total	% Total
N =	23	28	51	10%
Assessment				
Formal	2	8	10	20%
Informal	21	20	41	80%
Materials				
Teachermade	12	11	23	45%
Commercial	10	15	25	49%
Both	1	2	3	6%
None	0	0	0	
Behavior Management				
Yes	0	0	0	
No	23	28	51	100%
Learner Change				
Yes	17	17	34	67%
No	3	8	11	22%
N/A	3	3	6	11%

Mathematics

	Winter	Spring =	Total	% Total
N =	45	107	152	31%
Assessment				
Formal	9	15	24	16%
Informal	36	92	128	84%
Materials				
Teachermade	14	61	75	49%
Commercial	12	23	35	23%
Both	19	23	42	28%
None	0	0	0	
Behavior Management				
Yes	0	1	1	1%
No	45	106	151	99%
Learner Change				
Yes	36	58	94	62%
No	8	39	47	31%
N/A	1	10	11	7%

Reading

	Winter	Spring =	Total	% Total
N =	41	96	137	28%
Assessment				
Formal	12	17	29	21%
Informal	29	79	108	79%
Materials				
Teachermade	8	21	29	21%
Commercial	15	33	48	35%
Both	18	42	60	44%
None	0	0	0	
Behavior Management				
Yes	0	0	0	
No	41	96	137	100%
Learner Change				
Yes	27	53	80	58%
No	8	40	48	35%
N/A	6	3	9	7%

Language

	Winter	Spring	= Total	% Total
N =	36	45	81	16%
Assessment				
Formal	6	1	7	9%
Informal	30	44	74	91%
Materials				
Teachermade	22	27	49	61%
Commercial	2	11	13	16%
Both	12	7	19	23%
None	0	0	0	
Behavior Management				
Yes	0	1	1	1%
No	36	44	80	99%
Learner Change				
Yes	27	28	55	68%
No	6	14	20	25%
N/A	3	3	6	7%

Other

	Winter	Spring =	Total	% Total
N =	10	8	18	4%
Assessment				
Formal	0	3	3	17%
Informal	10	5	15	83%
Materials				
Teachermade	9	2	11	61%
Commercial	0	1	1	5.5%
Both	0	5	5	28%
None	1	0	1	5.5%
Behavior Management				
Yes	7	1	8	44%
No	3	7	10	56%
Learner Change				
Yes	7	1	8	44%
No	2	7	9	50%
N/A	1	0	1	6%

Initial Findings

Upon perusing the preceding data the following initial observations may be drawn:

(1) In each of the Major Competency Areas the use of informal teacher assessments far out weighs the utilization of formal assessments. The range varies from a 93% usage of informal assessments in "Self-Concept" to 79% in "Reading."

(2) Of 491 Individualized Educational Plans submitted the largest percentages of 28% and 31% were written in the areas of "Reading" and "Mathematics" respectively. The remaining breakdown was as follows: 16% - Language; 10% - Motor; 8% - Learning Precess; 4% - Other; and 3% - Self-Concept.

(3) The majority of the behaviors identified under the Major Competency Area of "Other" reflect educational plans to remediate behavioral problems exhibited in the classroom.

(4) It may be of significance that the two least attempted Major Competency Areas, also had the two highest proportionate rates of "No Learner Change:" 50% of the anticipated performances in "Other" and 36% in "Self-Concept" were not met.

(5) The Major Competency Areas which reflected the highest rates of success in learner Change were as follows: Language - 68%; Motor - 67%; Learning Process - 66%; Mathematics - 62%; and Reading 58%.

(6) Behavioral Management techniques were used most frequently in the category of "Other" at 44% of the time. The next most frequently used area was under "Self-Concept" for 14% of the time. Both areas were also identified under Observation #3, for experiencing the least amounts of learner change.

(7) Materials usage by the practicum students were categorized as teacher made, commercial, both and none.

48% of plans showed the use of teacher made materials; 28% indicated commercial materials, 27% used both and 1% used no materials. It appears most practicum students made extensive use of teacher made materials.

Subjective Comments

Cooperating teachers and practicum students comments were solicited, in addition to objective rating, on the checklist of training program competencies. Approximately one-half of those submitting a completed form offered subjective feedback regarding the Learning Disabilities teacher preparation program. For the most part, commonly voiced concerns were shared equally among both cooperating teachers and students. Following is a discussion of trends in these subjective reports and a listing of the miscellaneous comments made by teachers and students. Where applicable, positive comments are included.

Cooperating Teachers

There were positive comments regarding a student's training to remediate specific deficits. However there were twice as many teachers who suggested that the training program was lacking in areas of remediation. Some of the comments were: "students are prepared to find appropriate information but not to remediate deficits in learning processes"; "the program seems to be more geared toward theory than practice," most remediation techniques originate in the field rather than through course work."

Another concern was in the area of materials usage. Several teachers commented that students were ill-prepared to use commercial materials or prepare their own. Other suggested that students should be exposed to a greater variety of materials.

There were teachers who felt that a strength of the program was instruction in behavior modification techniques. A number of teachers, however, recommended that additional behavior management techniques other than behavior modification be taught. One teacher asked that management techniques appropriate for adolescents be offered.

Other Comments:

Practicum students should be required to take testing courses before getting into the practicum.

More diversification is needed in test preparation.

A requirement of the special education teacher preparation program ought to be that one must first have a backgroung in teaching.

A greater emphasis should be put on writing diagnostic reports.

It is difficult to assess how much of a student's knowledge is a result of previous training of a regular teacher.

Practicum Students

By far, the two areas students commented most about were remediation and materials. Of those making comment, all felt inadequately prepared in remediation of specific deficits. Several mentioned they were trained to identify a deficit, but that instruction in remediation never surpassed the level of discussion. Concern over preparation in materials usage brought similar comment. Students felt they needed more practical experience in using materials.

Other Comments:

The L. D. methods class was very weak.

Most materials I used were drawn from my own experience.

Just because I observed the audiometer being used does not qualify me to use it.

The program was weak in helping us develop long range plans.

There should be more instruction in assessment at the secondary level.

There was not enough supervision or feedback from the methods mini-practicum.

In summary, cooperating leaders and practicum students both report that the Learning Disabilities teacher preparation program is weak in instructional areas of remediating specific deficits and material preparation and usage. Comments also suggested that other behavior management techniques in addition to behavior modification should be taught. These subjective comments were collected during Winter and Spring Quarters 1977. They are a supplement to learner referenced data and as such are not meant to be evaluated in isolation from other data.

ATTACHMENT #1

The following listing of the 82 items considered to be observable will be presented in table format to the faculty of the Learning Disabilities Department at the conclusion of the summer quarter. The last 28 (54 - 82) items include the data gathered by child referenced evaluation. These tables present the ratings by the practicum student, pbulic school cooperating teachers and the university faculty of the L.D. department and represent the empirical data collected during Winter and Spring Quarters 1977.

Subjective comments are also summarized and presented in narrative format in the body of the report. These comments were of benefit in a formative sense for this project and also as an aid in assisting in the evaluation of the L.D. departments. Finally, the project staff felt it was necessary to include a brief listing of intervening variables which could possible effect child behavior change. This listing is not designed to be complete, but rather representative of the types of factors which could either facilitate or impede child behavior change.

QUESTIONS ASKED TO OBTAIN MEDIAN SCORES

1. University Faculty: "How well should U.N.C. prepare students of the Learning Disabilities curriculum in the following areas?"

2. Cooperating Teachers: "How well prepared was the practicum student in the following areas?"

3. Practicum Students: "How well did U.N.C. prepare you in the following areas?"

Scale: 0 Not Observed
1 No Preparation
2 Little Preparation
3 Average Preparation
4 Above Average Preparation
5 Excellent Preparation

EXPLANATION OF SUMMARY DATA CHART

Median Scores: Ratings of faculty, cooperating teachers, and practicum students as to the preparation provided by U.N.C.

N: Total number of individualized educational plans accomplished for specific item

Yes: Number of plans in which objectives was met

No: Number of plans in which objective was not met

%: Percentage of plans in which objective was met

Tolerable Limits: Area for faculty to indicate if the amount of change in within tolerable limits for the training program

SUMMARY OF DATA FOR LEARNING DISABILITIES DEPARTMENT

		Median Scores			Is this within tolerable limits for UNC training program?	
	Item	Faculty	Cooperating Teacher	Practicum Student	Yes	No
1.	Administer formal tests of learning processes	4.50	3.61	3.67		
2.	Administer formal tests of reading	4.50	3.34	3.21		
3.	Administer formal tests of writing	3.50	2.77	1.43		
4.	Administer formal tests of mathematics	4.17	3.35	2.31		
5.	Administer formal tests of academic achievement	4.50	3.38	3.03		
6.	Interpret information from formal language tests	4.83	3.55	2.24		
7.	Interpret information from formal mathematics tests	4.70	3.39	2.29		
8.	Interpret information from formal reading tests	4.70	3.58	3.25		
9.	Interpret information from formal individual intelligence tests	4.70	3.39	3.43		
10.	Interpret information from formal writing tests	4.50	2.64	1.68		
11.	Interpret information from formal visual perception tests	4.50	3.50	2.95		
12.	Interpret information from formal visual motor tests	4.50	3.20	3.07		
13.	Interpret information from formal motor tests	4.25	2.60	2.69		
14.	Interpret information from formal individual achievement tests	4.83	3.50	2.97		
15.	Use information from informal language assessments	4.83	2.96	2.28		

SUMMARY OF DATA FOR LEARNING DISABILITIES DEPARTMENT

	Median Scores			Is this within tolerable limits for UNC training program?	
Item	Faculty	Cooperating Teacher	Practicum Student	Yes	No
16. Use information from informal math assessments	4.83	3.17	2.33		
17. Use information from informal reading assessments	4.83	3.39	3.67		
18. Use oral reading errors to diagnose reading problems	4.50	3.75	3.75		
19. Use observations to diagnose reading problems	4.70	3.39	3.62		
20. Interpret results of audiometer and telebinocular	3.00	2.80	3.06		
21. Form diagnostic questions for gathering information	4.70	3.25	3.29		
22. Write an effective diagnostic report	4.70	3.50	3.67		
23. Evaluate diagnosis and remediation	4.70	3.19	3.41		
24. Diagnose the child through his task performance	4.70	3.32	3.27		
25. Design a sequential diagnostic plan	4.93	3.39	3.14		
26. Use task analysis to evaluate instruction	4.86	3.30	3.19		
27. Use classroom environmental factors to assess child	4.50	3.36	2.88		
28. Use criterion referenced measures	4.50	3.25	2.67		
29. Implement a program of contingency contracting	4.10	3.19	3.29		
30. Implement a token economy	4.00	3.07	3.38		

SUMMARY OF DATA FOR LEARNING DISABILITIES DEPARTMENT

Item	Median Scores			Is this within tolerable limits for UNC training program?	
	Faculty	Cooperating Teacher	Practicum Student	Yes	No
31. Implement schedules of reinforcement	4.00	3.27	3.53		
32. Observe and record overt behaviors	4.25	3.42	3.41		
33. Observe and record covert behaviors	4.13	3.50	2.98		
34. Compute interobserver agreements	3.60	3.00	2.62		
35. Be able to implement a measure of central tendency	3.50	3.06	3.16		
36. Implement a program to increase behavior	4.00	3.47	3.62		
37. Implement a program to decrease behavior	4.25	3.46	3.62		
38. Use primary reinforcers	4.13	3.39	3.60		
39. Use secondary reinforcers	3.90	3.42	3.54		
40. Design a learning environment	4.50	3.31	3.06		
41. Establish desired terminal behavior	4.80	3.20	3.37		
42. Implement methods for teaching mathematics	4.50	3.34	2.73		
43. Implement methods for remediating deficits in Learning Processes	4.25	3.18	2.98		
44. Adapt instruction as a result of feedback information	4.50	3.64	3.27		
45. Use behavioral objectives	4.50	3.47	3.93		

SUMMARY OF DATA FOR LEARNING DISABILITIES DEPARTMENT

Item	Median Scores			Is this within tolerable limits for UNC training program?	
	Faculty	Cooperating Teacher	Practicum Student	Yes	No
46. Develop an individualized educational plan	4.83	3.35	3.76		
47. Select appropriate commercial materials for teaching language	4.17	2.87	2.31		
48. Select appropriate commercial materials for teaching math	4.00	3.97	2.19		
49. Select appropriate commercial materials for teaching reading	4.00	3.14	3.27		
50. Select appropriate commercial materials to remediate a learning process deficit	4.00	2.95	2.47		
51. Prepare appropriate teacher made materials for teaching language	4.25	2.96	2.42		
52. Prepare appropriate teacher made materials for teaching math	4.00	3.46	2.54		
53. Prepare appropriate teacher made materials for teaching reading	4.17	3.28	3.50		
54. Prepare appropriate teacher made materials to remediate a learning process deficit	4.17	3.03	2.44		

SUMMARY OF DATA FOR LEARNING DISABILITIES DEPARTMENT

Item	Faculty	Coop. Teacher	Pract. Student	N	Positive Change	No Change	% of Change	Is this within tolerable limits for U.N.C.'s training prog.? Yes	No
55. Remediate deficits of visual perception	3.83	2.89	2.50	7	4	3	57%		
56, Remediate deficits of auditory perception	4.17	2.81	2.41	1	1	0	100%		
57. Remediate deficits of tactile-kinesthetic perception	4.00	2.79	2.40	0	0	0	0%		
58. Remediate deficits of attention	4.17	3.11	2.68	11	9	2	82%		
59. Remediate deficits of auditory discrimination	4.50	2.80	2.70	5	2	3	40%		
60. Remediate deficits of visual discrimination	4.17	2.94	2.72	3	2	1	67%		
61. Remediate deficits of sequencing	4.50	2.89	2.61	10	8	2	80%		
62. Remediate deficits of symbolization	4.50	2.80	2.21	0	0	0	0%		
63. Remediate deficits of memory	4.70	2.97	2.40	15	8	7	53%		
64. Remediate deficits of conceptualization	4.70	2.75	2.27	1	0	1	0%		
65. Remediate gross motor disabilities	3,83	2.63	2.17	8	6	2	75%		
66. Remediate fine motor disabilites	3.50	2.97	2.28	41	28	13	68%		
67. Remediate spoken language disorders	4.00	2.61	2.31	21	12	9	57%		
68. Remediate written language disabilities	4.70	2.78	2.10	24	16	8	67%		
69. Remediate spelling disabilities	4.50	2.94	2.12	43	37	5	88%		

SUMMARY OF DATA FOR LEARNING DISABILITIES DEPARTMENT

Item	Faculty	Coop. Teacher	Pract. Student	N	Positive Change	No Change	% of Change	Is this within tolerable limits for U.N.C.'s training prog.?	
								Yes	No
70. Remediate reading problems associated with language disorders	4.70	2.93	2.44	4	4	0	100%		
71. Remediate deficits in math readiness skills	4.25	3.17	2.33	12	6	6	50%		
72. Remediate computational skill deficits	4.50	3.09	2.21	110	70	40	64%		
73. Remediate problem solving deficits	4.50	3.00	2.19	20	14	6	70%		
74. Effect change in reading readiness skills	4,25	3.13	3:07	14	8	6	57%		
75. Effect change in sight vocabulary	4.25	3.18	3.57	34	15	19	44%		
76. Effect change in word analysis skills	4.70	3.22	2,62	38	28	10	74%		
77. Effect change in use of context clues	4.50	3.16	3.50	0	0	0	0%		
78. Effect change in comprehension	4.50	3.33	3.32	21	13	8	62%		
79. Effect change in fluency	4.50	3.09	2.90	6	3	3	50%		
80. Effect change in rate	4.17	3.17	2.79	2	0	2	0%		
81. Effect change in study skills	4.25	3.00	2.74	7	4	3	57%		
82. Improve the child's self-concept	4.70	3.35	3.05	9	4	5	44%		

Possible Variables Effecting Child Change

Classroom (Resource Room)

Amount of time spent in resource room
Pupil teacher ratio
Materials available to child
Environment of the classroom
Discipline/management techniques

Teacher (Special Education)

Interaction with the child
Philosophical orientation of the teacher
Training of the teacher
Interaction with the regular class teacher
Choice of materials
Choice of reinforcement and management techniques
Planning and teaching skills
Amount of supervision provided to practicum student
Background experience of the teacher

Practicum Student

Familarity with educational setting
Prior teaching experience
Need for supervision
Planning skills
Age
Educational background
Personality

Child

Motivation
Acceptance of resource room setting and staff
Emotional stability
Intelligence
Grade level
Prior subject knowledge
Home factors

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